

SEQUENCE LISTING

<110> Syngenta Participations, AG
Cooper, Bret

5 <120> STRESS-RELATED POLYPEPTIDES AND USES THEREFOR

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10 <150> US 60/436,564
<151> 2002-12-26

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60	cct ctt gac atc ttc aag ttc ttc atc cgc ttt gtg ctg agt gga agg Pro Leu Asp Ile Phe Lys Phe Phe Ile Arg Phe Val Leu Ser Gly Arg 385 390 395 400	1200
	gcc tgg gac aac ctc ctt gag aac aag att gca ttc acc acc aag aag Ala Trp Asp Asn Leu Leu Glu Asn Lys Ile Ala Phe Thr Thr Lys Lys 405 410 415	1248
65	gat tac ggt agg gag gag agg gag gca caa tgg gcc acc gca caa aga Asp Tyr Gly Arg Glu Glu Arg Glu Ala Gln Trp Ala Thr Ala Gln Arg 420 425 430	1296

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 Thr Leu His Gly Leu Gln Pro Pro Glu Val Ala Ser Asn Thr Leu Phe
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45 Asp Gln Leu Ala Ile Gly Lys Glu Thr Gly Arg Arg Leu Gly Met Gly
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Ser Leu Glu Ala Leu Pro Val Asp Glu Leu Ile Glu Lys Ala Asp Gly
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55 Phe Ala Gly Val Phe Pro Glu His Lys Tyr Glu Ile Val Lys Arg Leu
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60 Gln Glu Lys Lys His Ile Val Gly Met Thr Gly Asp Gly Val Asn Asp
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10 Arg Met Lys Asn Tyr Thr Ile Tyr Ala Val Ser Ile Thr Ile Arg Ile
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15 Val Leu Gly Phe Leu Leu Ile Ala Leu Ile Trp Lys Tyr Asp Phe Ser
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20 Pro Phe Met Val Leu Ile Ile Ala Ile Leu Asn Asp Gly Thr Ile Met
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25 Thr Ile Ser Lys Asp Arg Val Lys Pro Ser Pro Leu Pro Asp Ser Trp
 245 250 255

30 Lys Leu Lys Glu Ile Phe Ala Thr Gly Ile Val Leu Gly Ser Tyr Leu
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35 Ala Leu Met Thr Val Ile Phe Phe Trp Ala Met His Lys Thr Asp Phe
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70 Pro Leu Asp Ile Phe Lys Phe Phe Ile Arg Phe Val Leu Ser Gly Arg
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Thr Leu His Gly Leu Gln Pro Pro Glu Val Ala Ser Asn Thr Leu Phe
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5 Asn Asp Lys Ser Ser Tyr Arg Glu Leu Ser Glu Ile Ala Glu Gln Ala
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 Ser Arg Ala Pro Thr Ser Leu Arg Ala Ala Ala Glu Asp Gln Pro Ala
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 gcg gcg gcg acg gag gag aag aag cca gcc ccc gcg ggg ttc gtg ccg 192
 Ala Ala Ala Thr Glu Glu Lys Lys Pro Ala Pro Ala Gly Phe Val Pro
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 ccg cag ctg gac ccc aac acg ccg tcc ccg atc ttc ggc ggg agc acg 240
 Pro Gln Leu Asp Pro Asn Thr Pro Ser Pro Ile Phe Gly Gly Ser Thr
 65 70 75 80

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 Gly Gly Leu Leu Arg Lys Ala Gln Val Glu Glu Phe Tyr Val Ile Thr
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 Trp Thr Ser Pro Lys Glu Gln Val Phe Glu Met Pro Thr Gly Gly Ala
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 gcc atc atg cgc gag ggc ccc aac ctg ctg aag ctg gcc agg aag gag 384
 Ala Ile Met Arg Glu Gly Pro Asn Leu Leu Lys Leu Ala Arg Lys Glu
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 cag tgc ctg gcc ctg ggc acc agg ctc cgc tcc aag tac aag atc aac 432
 Gln Cys Leu Ala Leu Gly Thr Arg Leu Arg Ser Lys Tyr Lys Ile Asn
 130 135 140

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 tac cag ttc tac cgc gtc ttc ccc aat ggc gag gtg cag tac ctc cac 480

Tyr Gln Phe Tyr Arg Val Phe Pro Asn Gly Glu Val Gln Tyr Leu His
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5 ccc aag gac ggc gtc tac ccg gag aag gtc aac gcc ggc agg cag ggc 528
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10 gtc ggc cag aac ttc cgc agc atc ggc aag aac gtc agc ccc atc gag 576
 Val Gly Gln Asn Phe Arg Ser Ile Gly Lys Asn Val Ser Pro Ile Glu
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gtc aag ttc acc ggc aag aac gtc ttc gac atc tag 612
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40 Pro Gln Leu Asp Pro Asn Thr Pro Ser Pro Ile Phe Gly Gly Ser Thr
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45 Gly Gly Leu Leu Arg Lys Ala Gln Val Glu Glu Phe Tyr Val Ile Thr
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Trp Thr Ser Pro Lys Glu Gln Val Phe Glu Met Pro Thr Gly Gly Ala
 100 105 110

50 Ala Ile Met Arg Glu Gly Pro Asn Leu Leu Lys Leu Ala Arg Lys Glu
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55 Gln Cys Leu Ala Leu Gly Thr Arg Leu Arg Ser Lys Tyr Lys Ile Asn
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60 Tyr Gln Phe Tyr Arg Val Phe Pro Asn Gly Glu Val Gln Tyr Leu His
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65 Pro Lys Asp Gly Val Tyr Pro Glu Lys Val Asn Ala Gly Arg Gln Gly
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	Pro Arg Gly Val Ala Cys Ala Leu Arg Arg Arg Pro Ser Lys Tyr Lys			
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	Asn Lys Ile Gln Asn Glu Glu Val Val Val Glu Asp Asp Ile Gly Gly			
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	Gly Gly Glu Asp Asp Asp Ala Leu Glu Ala Leu Phe Lys Gln Leu			
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	Glu Glu Asp Leu Lys Asn Asp Asp Leu Ser Val Glu Asp Asp Asp Asp			
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	Gly Ile Ser Glu Glu Asp Met Ala Arg Phe Glu Gln Glu Leu Ala Glu			
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	Ala Ile Gly Asp Ile Ala Asp Ala Asp Glu Ser Gly Glu Gly Ser Ser			
	100 105 110			
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	Leu Gly Ser Glu Ala Tyr Gly Asn Asp Glu Lys Thr Asp Glu Ile Lys			
	115 120 125			
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	Arg Pro Glu Leu Lys Asn Trp Gln Leu Lys Arg Leu Ala Arg Ala Leu			
	130 135 140			
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	145 150 155 160			
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	Gly Leu Asp Arg Thr Leu Val Ile Glu Leu Leu Arg Asn Pro Pro Pro			
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	Lys Leu Leu Phe Met Ser Asp Ser Leu Pro Asp Glu Asp Pro Ser Lys			
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	Pro Glu Ile Lys Glu Ile Glu Pro Ser Pro Val Val Asp Asn Ala Asp			

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25	tgg ttt gag gat aga agg gaa cag gat ggg gta cct gac cat cga gtt Trp Phe Glu Asp Arg Arg Glu Gln Asp Gly Val Pro Asp His Arg Val 275 280 285	864		
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	Leu Gly Ser Glu Ala Tyr Gly Asn Asp Glu Lys Thr Asp Glu Ile Lys 115 120 125			
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5 Lys Ile Gly Arg Arg Lys Thr Ser Ile Lys Asn Leu Ala Gly Glu Leu
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 Gly Leu Asp Arg Thr Leu Val Ile Glu Leu Leu Arg Asn Pro Pro Pro
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 10 Lys Leu Leu Phe Met Ser Asp Ser Leu Pro Asp Glu Asp Pro Ser Lys
 180 185 190
 15 Pro Glu Ile Lys Glu Ile Glu Pro Ser Pro Val Val Asp Asn Ala Asp
 195 200 205
 20 Val Thr Glu Thr Lys Pro Gln Thr Glu Leu Pro Val His Val Met Cys
 210 215 220
 25 Ala Glu Trp Ser Ser Gln Lys Arg Leu Lys Lys Val Gln Leu Glu Thr
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 60 gtc ggg gcg ggc aag tcg gcc gtg ctg aac agc ctc atc ggc cac ccc 96
 Val Gly Ala Gly Lys Ser Ala Val Leu Asn Ser Leu Ile Gly His Pro
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 65 gtg ctg ccg acg ggg gag aac ggg gcg acg agg gcg cca att gtg gtg 144
 Val Leu Pro Thr Gly Glu Asn Gly Ala Thr Arg Ala Pro Ile Val Val
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 gac ctg cag agg gac ccg ggc ctc agc agc aag tcc atc gtg ctg caa 192
 Asp Leu Gln Arg Asp Pro Gly Leu Ser Ser Lys Ser Ile Val Leu Gln
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10 cgt gta gag ggg atc aat ctc aag ctg cgg acg agt aca gct ccc cca 336
 Arg Val Glu Gly Ile Asn Leu Lys Leu Arg Thr Ser Thr Ala Pro Pro
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15 cta aag ctg gtt gat tta cct ggg ata gac cag cga gct gtt gac gat 384
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 115 120 125

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 130 135 140

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 Arg Leu Ala Lys Asp Ile Asp Ala Asp Gly Thr Arg Thr Val Gly Val
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35 gtt cag gcc ctt ctg ttg aat aag ggc cca aaa aac ctt cca gat atc 624
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 195 200 205

40 gag tgg gtt gct ctg ata gga caa tca gtt gca att gcg tca gct caa 672
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 210 215 220

45 gca gca ggt tct gaa aac tca cta gaa aca gca tgg aat gct gaa gct 720
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 225 230 235 240

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 Asp Leu Gln Arg Asp Pro Gly Leu Ser Ser Lys Ser Ile Val Leu Gln
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10 cat ggt gaa gct tca aag gca gat tcc tcc aag aag ctg cgg atg tcg 96
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25 ggt tat ctg aat gca aag atg gtt tcg agg agc tgg aag gct gcg atc 240
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  Thr Gly Val Glu Leu Tyr Arg Val Arg Lys Glu Leu Gly Val Ser Glu
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  Pro Gly Ile Ser His Gly Gly Glu Cys Lys Arg Gly Ile Pro Gly Leu
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55 aga ggc tgg ctt ggc caa agg gat tca ttg gat agg ctt ccg ttc tgc 528
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65 ttc tct aga ggc tcg gcg atg aaa tgt gta tgg agg tat gat cct ttt 624
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70 gtc aat gcg tgg cag gag gtt agc tcg atg agc acc ggg cgc gca ttc 672
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80 agc aaa ggc aag aac ggg tta gct ccg ctc caa tcc gcc gag gtg ttt 768
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	Ser Lys Ile Asn Ile Met Gln Thr Asp Val Leu Lys Pro Val Glu Leu	
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	Ser Ala Pro Gly Asn Gly Pro Thr Cys Gln Asn Gln Leu Phe Ser	
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	Glu Gln Glu Thr Asn Leu Trp Lys Val Ile Val Ser Lys Asn Leu Ala	
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10 Leu Pro Asp Glu Ile Ser Leu Gln Ile Leu Ala Arg Met Pro Arg Met
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15 Gly Tyr Leu Asn Ala Lys Met Val Ser Arg Ser Trp Lys Ala Ala Ile
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25 Asn Ala Phe Asp Pro Val Cys Gly Gln Trp Gln Arg Leu Pro Leu Met
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30 Pro Gly Ile Ser His Gly Gly Glu Cys Lys Arg Gly Ile Pro Gly Leu
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Arg Gly Trp Leu Gly Gln Arg Asp Ser Leu Asp Arg Leu Pro Phe Cys
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40 Gly Cys Ala Ile Gly Thr Val Asn Gly Cys Ile Tyr Val Leu Gly Gly
 180 185 190

45 Phe Ser Arg Gly Ser Ala Met Lys Cys Val Trp Arg Tyr Asp Pro Phe
 195 200 205

50 Val Asn Ala Trp Gln Glu Val Ser Ser Met Ser Thr Gly Arg Ala Phe
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55 Cys Lys Ala Ser Leu Leu Asn Asn Lys Leu Tyr Val Val Gly Gly Val
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Ser Lys Gly Lys Asn Gly Leu Ala Pro Leu Gln Ser Ala Glu Val Phe
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60 Asp Pro Arg Thr Gly Ile Trp Val Gly Gly Ala Leu Thr Leu Ser Val
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65 Ser Lys Gly Pro Ser Ser Thr Ser Cys Leu Leu Val Glu Leu Val Lys
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10 Phe Asp Pro Glu Thr Asn Ser Trp Ala Glu Met Pro Val Gly Met Gly
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20 Asp Gly Asp Leu Tyr Ala Leu Glu Pro Ser Thr Ser Phe Asp Arg Gly
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30 Leu Ala Gly Phe Leu Gly Lys Leu Asn Leu Ile Ile Lys Asp Val Asp
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35 Ser Lys Ile Asn Ile Met Gln Thr Asp Val Leu Lys Pro Val Glu Leu
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Ser Ala Pro Gly Asn Gly Pro Thr Cys Gln Asn Gln Gln Leu Phe Ser
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	50 55 60	
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	85 90 95	
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	100 105 110	
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	115 120 125	
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	130 135 140	
35	caa ata tca gca cat gaa cta gat tat ata acc agg ggt cag aaa ttg Gln Ile Ser Ala His Glu Leu Asp Tyr Ile Thr Arg Gly Gln Lys Leu	480
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	165 170 175	
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	180 185 190	
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	195 200 205	
55	tat ttc aaa aca ata tat cat gtt aat ctg aga gaa gct gca tgg ttt Tyr Phe Lys Thr Ile Tyr His Val Asn Leu Arg Glu Ala Ala Trp Phe	672
	210 215 220	
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	225 230 235 240	
65	gtt gta tca gac agg ctt atc caa aat ggt aca agc atc act ttg act Val Val Ser Asp Arg Leu Ile Gln Asn Gly Thr Ser Ile Thr Leu Thr	768
	245 250 255	
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	260 265 270	
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	275 280 285	
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30	Arg Lys Ile Met Gln Thr Ile Gly Phe Val Gly Pro Gly Val Ala Leu 260 265 270		
35	Leu Gly Leu Asn Ala Ala Lys Ser Pro Val Ile Ala Ser Ala Trp Leu 275 280 285		
40	Thr Ile Ala Val Gly Leu Lys Ser Phe Gly His Ser Gly Phe Leu Val 290 295 300		
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55	Gly Phe Phe Val Asp Arg Met Gly Ser Phe Arg Gly Phe Leu Ile Leu 340 345 350		
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	Ile Ala Phe Gly Val Phe Leu Leu Leu Val Ser Leu Ala Gly Leu Val							
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20	ggc gcc tgc tgc cgc gtc aac tgc ctc ctc tgg ttc tac ctc gtc gcc							240
	Gly Ala Cys Cys Arg Val Asn Cys Leu Leu Trp Phe Tyr Leu Val Ala							
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	Val Val Thr Asn Lys Gly Ala Gly Glu Ala Val Ser Gly Arg Gly Tyr							
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	Pro Thr Asn Ser Ser Asp Pro Asp Cys Asn Thr Trp Val Asp Asp Gly							
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65	acg cag ctg tgc tac aac tgc cag tgc tgc aag gcc ggc gcg gtg gcg							672
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	Met Thr Thr Tyr Pro Ser Leu Arg Val Ala Tyr Ile Asp Glu Val Glu	
	210 215 220	
15	gag cca agc aaa gac agg aac aag aag ata gaa aag gtt tac tac tca	720
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	ctt gat cag gac ata tac aga ata aag cta cca ggt aat gca atg cta	816
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5	aga	atg	ttg	tcc	tgc	tac	tac	acc	act	att	ggg	ttt	tac	ttc	agc	act	1440
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50	gtg gat gat gct tca gat tat gga aat tct cag att gat cta cac caa Val Asp Asp Ala Ser Asp Tyr Gly Asn Ser Gln Ile Asp Leu His Gln 260 265 270			816
55	gct cgt gaa cac att gag caa cat gac tcc ccc agg gat atc ttc ggt Ala Arg Glu His Ile Glu Gln His Asp Ser Pro Arg Asp Ile Phe Gly 275 280 285			864
60	gcg gtc ctc gaa act gct gca cag gct tat ggt gaa gat gag agt att Ala Val Leu Glu Thr Ala Ala Gln Ala Tyr Gly Glu Asp Glu Ser Ile 290 295 300			912
65	gag gac atg ctt gaa gag ctt gtc agt gac cca gaa ctt aca gat gac Glu Asp Met Leu Glu Glu Leu Val Ser Asp Pro Glu Leu Thr Asp Asp 305 310 315 320			960
70	tac ctg aaa ctt ctg ctc caa caa gtt cgc cag agg ata cag tcg gca Tyr Leu Lys Leu Leu Gln Gln Val Arg Gln Arg Ile Gln Ser Ala 325 330 335			1008
75	tct caa tcc ggg aac cag tct tga Ser Gln Ser Gly Asn Gln Ser 340			1032
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<400> 28

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5 Thr Cys Thr Asp Asp Ile Ser Val Asn Arg Ser Ala Glu Asn Ser Ser
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10 Gln Lys Asn Ile Pro Leu Asp Gly Val Ser Ala Gln Ser Ile Lys Pro
 35 40 45

15 Ser Ala Ser Ser Arg Ser Glu Pro Val Gly Leu Gly Gly Gly Leu Gln
 50 55 60

20 Pro Lys Arg Arg Ser Arg Thr Ala Lys Pro Pro Gly Ser Ser Ser Asp
 65 70 75 80

25 Thr Gly Glu Val Val Asn Ser Ser Arg Ile Ser Asn Ser Gln Asn Ala
 85 90 95

30 Val Ser Met Gly Gln Gln Val Leu Gln Ala Leu Ala Ser Gln Asn Thr
 100 105 110

35 Asn Val Asn Arg Ser His Val Thr Asp Ser Pro Leu Pro Ser Thr Thr
 115 120 125

40 Ser Gln Phe Ser Gly Gly Met Pro Pro Arg Arg Gln Gly Gly Glu Gly
 130 135 140

45 Gln Val Asp Phe Gly Ser Met Ile Ser Ser Val Leu Asn Asn Pro Ala
 145 150 155 160

Phe Gly Asn Leu Leu Ser Asn Val Ala Glu Gln Thr Gly Met Gly Ser
 165 170 175

50 Ala Gly Asp Leu Arg Asn Met Val Glu Glu Cys Ala Gln Ser Pro Ala
 180 185 190

55 Ile Met Asp Thr Met Ser Asn Leu Val Gln Asn Val Asp Gly Ser Gly
 195 200 205

60 Arg Gly Gln Gly Gly Ile Asp Leu Ser Arg Met Met Gln Gln Met Met
 210 215 220

65 Pro Val Val Ser Gln Val Leu Gly Gly Ala Gly Ala Arg Pro Ala Gly
 225 230 235 240

Thr Asn Ser Gly Gln Ser Arg Leu Gln Pro Arg Arg Ser Asp Met Arg
 245 250 255

Val Asp Asp Ala Ser Asp Tyr Gly Asn Ser Gln Ile Asp Leu His Gln
 260 265 270

	Ala	Arg	Glu	His	Ile	Glu	Gln	His	Asp	Ser	Pro	Arg	Asp	Ile	Phe	Gly	
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	Ala	Val	Leu	Glu	Thr	Ala	Ala	Gln	Ala	Tyr	Gly	Glu	Asp	Glu	Ser	Ile	
		290					295					300					
10																	
	Glu	Asp	Met	Leu	Glu	Glu	Leu	Val	Ser	Asp	Pro	Glu	Leu	Thr	Asp	Asp	
	305				310						315					320	
15																	
	Tyr	Leu	Lys	Leu	Leu	Leu	Gln	Gln	Val	Arg	Gln	Arg	Ile	Gln	Ser	Ala	
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	1				5					10					15		
	gcg	ttc	tcc	ctc	ttc	gac	acc	gac	ggc	gac	ggc	cgg	atc	gcg	ccg	tcg	96
40	Ala	Phe	Ser	Leu	Phe	Asp	Thr	Asp	Gly	Asp	Gly	Arg	Ile	Ala	Pro	Ser	
				20					25					30			
	gag	ctc	ggc	gtc	ctg	atg	cgc	tcc	ctc	ggc	ggg	aac	ccc	acc	cag	gcg	144
45	Glu	Leu	Gly	Val	Leu	Met	Arg	Ser	Leu	Gly	Gly	Asn	Pro	Thr	Gln	Ala	
			35					40					45				
	cag	ctc	cgc	gac	atc	gcc	gcg	cag	gag	aag	ctc	acc	gcg	ccc	ttc	gac	192
50	Gln	Leu	Arg	Asp	Ile	Ala	Ala	Gln	Glu	Lys	Leu	Thr	Ala	Pro	Phe	Asp	
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	ttc	ccg	cgc	ttc	ctc	gac	ctc	atg	cgc	gcc	cac	ctc	cgc	ccc	gag	ccc	240
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atc gtc gcc aaa taa
 Ile Val Ala Lys
 145

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Ala Phe Ser Leu Phe Asp Thr Asp Gly Asp Gly Arg Ile Ala Pro Ser
 20 25 30

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Glu Leu Gly Val Leu Met Arg Ser Leu Gly Gly Asn Pro Thr Gln Ala
 35 40 45

25

Gln Leu Arg Asp Ile Ala Ala Gln Glu Lys Leu Thr Ala Pro Phe Asp
 50 55 60

30

Phe Pro Arg Phe Leu Asp Leu Met Arg Ala His Leu Arg Pro Glu Pro
 65 70 75 80

35

Phe Asp Arg Pro Leu Arg Asp Ala Phe Arg Val Leu Asp Lys Asp Ala
 85 90 95

40

Ser Gly Thr Val Ser Val Ala Asp Leu Arg His Val Leu Thr Ser Ile
 100 105 110

45

Gly Glu Lys Leu Glu Pro His Glu Phe Asp Glu Trp Ile Arg Glu Val
 115 120 125

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Asp Val Ala Pro Asp Gly Thr Ile Arg Tyr Asp Asp Phe Ile Arg Arg
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Ile Val Ala Lys
 145

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 1 5 10 15

48

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5	gac ggc ttc att tca tgg ctg cgc gga aag ttc gcg gcg gcc aac gcc Asp Gly Phe Ile Ser Trp Leu Arg Gly Lys Phe Ala Ala Asn Ala 35 40 45	144
10	atc atc gac ctg ctg ctg ctc cam cty cgs tcc gtc ggc gag ccc ggg Ile Ile Asp Leu Leu Leu Leu Xaa Xaa Arg Ser Val Gly Glu Pro Gly 50 55 60	192
15	gag ttc gag cac gtc gcc gcc gcg gtg cag cag cgg cgc cac cac tgg Glu Phe Glu His Val Ala Ala Ala Val Gln Gln Arg Arg His His Trp 65 70 75 80	240
20	gcg ccc gtg atc cac atg cag cag ttc ttc ccc gtc ggc gac gtc gcg Ala Pro Val Ile His Met Gln Gln Phe Phe Pro Val Gly Asp Val Ala 85 90 95	288
25	tac gcg ctc cag cag gcc ggg tkg cgc cgc cgc gcg ccg ccg cac cac Tyr Ala Leu Gln Gln Ala Gly Xaa Arg Arg Ala Pro Pro His His 100 105 110	336
30	cag cag cag ggc ccc ggc gcc tcg ccg tcc ccg ccg ccc cyt ccc ccg Gln Gln Gln Gly Pro Gly Ala Ser Pro Ser Pro Pro Pro Xaa Pro Pro 115 120 125	384
35	cgc ggc cgc ccc tcg ttc tcg gcg tcc cac tcg cac cat cgc cac ggt Arg Gly Arg Pro Ser Phe Ser Ala Ser His Ser His His Arg His Gly 130 135 140	432
40	ggt cac cat cat cgc tcc gat tcg gtg cgc ggc ggc ggc act ggt gcg Gly His His His Arg Ser Asp Ser Val Arg Gly Gly Gly Thr Gly Ala 145 150 155 160	480
45	acg gct gga tcc gat aaa gat gga cgt gaa gtt cat aac aag gaa gag Thr Ala Gly Ser Asp Lys Asp Gly Arg Glu Val His Asn Lys Glu Glu 165 170 175	528
50	aaa gga atg aag gaa gca gag aat gtg gtt gaa gct aaa agc tca cag Lys Gly Met Lys Glu Ala Glu Asn Val Val Glu Ala Lys Ser Ser Gln 180 185 190	576
55	ttg gag tct ctt gtt tct cat gaa ggt gaa aaa act cct agg ccg caa Leu Glu Ser Leu Val Ser His Glu Gly Glu Lys Thr Pro Arg Pro Gln 195 200 205	624
60	gct gtt gct gaa gga agc agt aaa gtg gtt cca act cct gtg gag tat Ala Val Ala Glu Gly Ser Ser Lys Val Val Pro Thr Pro Val Glu Tyr 210 215 220	672
65	acg gtc aat gac att att gat ggc aag acg gtt aat gct gtt gaa ggg Thr Val Asn Asp Ile Ile Asp Gly Lys Thr Val Asn Ala Val Glu Gly 225 230 235 240	720
70	ctt aag gtt tat gaa ggg ttg gta aat gag aat gag aaa aac aag att Leu Lys Val Tyr Glu Gly Leu Val Asn Glu Asn Glu Lys Asn Lys Ile 245 250 255	768
75	ctc tct tta ctt aat gaa aca aaa gct tct ttt cgt cga gga ggg ctt Leu Ser Leu Leu Asn Glu Thr Lys Ala Ser Phe Arg Arg Gly Gly Leu 260 265 270	816
80	gaa gct ggg cag act gta ata att gga aaa aga cca atg aag ggt cat Glu Ala Gly Gln Thr Val Ile Ile Gly Lys Arg Pro Met Lys Gly His 275 280 285	864

	ggg agg gaa att att cag ctg ggc att cct atc gtt gaa ggc cct cct Gly Arg Glu Ile Ile Gln Leu Gly Ile Pro Ile Val Glu Gly Pro Pro	912
	290 295 300	
5	gaa gat gac tat cca aga gag aca aaa gtg gag gct gtt cct gga ttg Glu Asp Asp Tyr Pro Arg Glu Thr Lys Val Glu Ala Val Pro Gly Leu	960
	305 310 315 320	
10	ctg cat gat ctg ttt gac cgc ttg tgt cag aag gaa att ata cca aca Leu His Asp Leu Phe Asp Arg Leu Cys Gln Lys Glu Ile Ile Pro Thr	1008
	325 330 335	
15	aaa cca gat tat tgt gtt att gat tac tac aat gag ggg gat tat tct Lys Pro Asp Tyr Cys Val Ile Asp Tyr Tyr Asn Glu Gly Asp Tyr Ser	1056
	340 345 350	
20	cac cct cac caa tcc cct cct tgg tat ggt aga ccc ttt tgt aca ttc His Pro His Gln Ser Pro Pro Trp Tyr Gly Arg Pro Phe Cys Thr Phe	1104
	355 360 365	
25	tgc ctg aca gat tgt gac atg gtg ttc ggc cga gtt att tca gga gaa Cys Leu Thr Asp Cys Asp Met Val Phe Gly Arg Val Ile Ser Gly Glu	1152
	370 375 380	
30	cga ggt gat cat aga ggt cct ctg aag ctc ctt ctc tcg aca ggg tct Arg Gly Asp His Arg Gly Pro Leu Lys Leu Leu Leu Ser Thr Gly Ser	1200
	385 390 395 400	
35	ctt ctg gtg ttg cat ggg aag agt gct gat gtt gct aag cga gct att Leu Leu Val Leu His Gly Lys Ser Ala Asp Val Ala Lys Arg Ala Ile	1248
	405 410 415	
40	cct gct gca tgt aag cag cgg atc cta cta agc ttc ggg aag tct tta Pro Ala Ala Cys Lys Gln Arg Ile Leu Leu Ser Phe Gly Lys Ser Leu	1296
	420 425 430	
45	tcg aga aaa caa gta cca tct gaa agt gtt tca cgg ttt act acc ccg Ser Arg Lys Gln Val Pro Ser Glu Ser Val Ser Arg Phe Thr Thr Pro	1344
	435 440 445	
50	ttg aca cca cct cct atg ccc tgg ggt cct cca agg ccg gct aac atg Leu Thr Pro Pro Pro Met Trp Gly Pro Pro Arg Pro Ala Asn Met	1392
	450 455 460	
55	gcg cgt cat tct tca agc cct aaa cac ttt gga tat gcc cca aac agt Ala Arg His Ser Ser Ser Pro Lys His Phe Gly Tyr Ala Pro Asn Ser	1440
	465 470 475 480	
60	ggc gta ctt cca gcg ccg gcc att gga gcg cat cac att cct cca tca Gly Val Leu Pro Ala Pro Ala Ile Gly Ala His His Ile Pro Pro Ser	1488
	485 490 495	
65	gat gga atg cag cca ctc ttt gta gca cct gct cca gtt gct gct gca Asp Gly Met Gln Pro Leu Phe Val Ala Pro Ala Pro Val Ala Ala Ala	1536
	500 505 510	
70	gcc atg cct ttc cca tca cct gtt cct ttg cca aac tta acc aac agc Ala Met Pro Phe Pro Ser Pro Val Pro Leu Pro Asn Leu Thr Asn Ser	1584
	515 520 525	
75	ttg gat ggc aga agc tgc tcc aag gtc tgc tcc aca acg act ccc agt Leu Asp Gly Arg Ser Cys Ser Lys Val Cys Ser Thr Thr Thr Pro Ser	1632
	530 535 540	
80	tcc tgg cac ggg ggt ctt cct tcc tcc tgg atc ggg tca cgc act gcc Ser Trp His Gly Gly Leu Pro Ser Ser Trp Ile Gly Ser Arg Thr Ala	1680
	545 550 555 560	

1692

tca tca gat gat
Ser Ser Asp Asp

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 <211> 564
 <212> PRT
 <213> Oryza sativa

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 <222> (23)..(23)
 <223> The 'Xaa' at location 23 stands for Arg, or Lys.

15
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 <221> misc_feature
 <222> (56)..(56)
 <223> The 'Xaa' at location 56 stands for Gln, or His.

20
 <220>
 <221> misc_feature
 <222> (57)..(57)
 <223> The 'Xaa' at location 57 stands for Leu.

25
 <220>
 <221> misc_feature
 <222> (104)..(104)
 <223> The 'Xaa' at location 104 stands for Trp, or Leu.

30
 <220>
 <221> misc_feature
 <222> (126)..(126)
 <223> The 'Xaa' at location 126 stands for Pro, or Leu.

35
 <400> 32

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40
 Ala Gly Ala Ala Ala Val Xaa Ser Ala Gly Trp Val Val Asp Glu Arg
 20 25 30

45
 Asp Gly Phe Ile Ser Trp Leu Arg Gly Lys Phe Ala Ala Ala Asn Ala
 35 40 45

50
 Ile Ile Asp Leu Leu Leu Leu Xaa Xaa Arg Ser Val Gly Glu Pro Gly
 50 55 60

55
 Glu Phe Glu His Val Ala Ala Ala Val Gln Gln Arg Arg His His Trp
 65 70 75 80

60
 Ala Pro Val Ile His Met Gln Gln Phe Phe Pro Val Gly Asp Val Ala
 85 90 95

65
 Tyr Ala Leu Gln Gln Ala Gly Xaa Arg Arg Arg Ala Pro Pro His His
 100 105 110

Gln Gln Gln Gly Pro Gly Ala Ser Pro Ser Pro Pro Pro Xaa Pro Pro
 115 120 125

Arg Gly Arg Pro Ser Phe Ser Ala Ser His Ser His His Arg His Gly
 130 135 140
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 Gly His His His Arg Ser Asp Ser Val Arg Gly Gly Gly Thr Gly Ala
 145 150 155 160
 10 Thr Ala Gly Ser Asp Lys Asp Gly Arg Glu Val His Asn Lys Glu Glu
 165 170 175
 15 Lys Gly Met Lys Glu Ala Glu Asn Val Val Glu Ala Lys Ser Ser Gln
 180 185 190
 20 Leu Glu Ser Leu Val Ser His Glu Gly Glu Lys Thr Pro Arg Pro Gln
 195 200 205
 Ala Val Ala Glu Gly Ser Ser Lys Val Val Pro Thr Pro Val Glu Tyr
 210 215 220
 25 Thr Val Asn Asp Ile Ile Asp Gly Lys Thr Val Asn Ala Val Glu Gly
 225 230 235 240
 30 Leu Lys Val Tyr Glu Gly Leu Val Asn Glu Asn Glu Lys Asn Lys Ile
 245 250 255
 35 Leu Ser Leu Leu Asn Glu Thr Lys Ala Ser Phe Arg Arg Gly Gly Leu
 260 265 270
 40 Glu Ala Gly Gln Thr Val Ile Ile Gly Lys Arg Pro Met Lys Gly His
 275 280 285
 Gly Arg Glu Ile Ile Gln Leu Gly Ile Pro Ile Val Glu Gly Pro Pro
 290 295 300
 45 Glu Asp Asp Tyr Pro Arg Glu Thr Lys Val Glu Ala Val Pro Gly Leu
 305 310 315 320
 50 Leu His Asp Leu Phe Asp Arg Leu Cys Gln Lys Glu Ile Ile Pro Thr
 325 330 335
 55 Lys Pro Asp Tyr Cys Val Ile Asp Tyr Tyr Asn Glu Gly Asp Tyr Ser
 340 345 350
 60 His Pro His Gln Ser Pro Pro Trp Tyr Gly Arg Pro Phe Cys Thr Phe
 355 360 365
 Cys Leu Thr Asp Cys Asp Met Val Phe Gly Arg Val Ile Ser Gly Glu
 370 375 380
 65 Arg Gly Asp His Arg Gly Pro Leu Lys Leu Leu Leu Ser Thr Gly Ser
 385 390 395 400

Leu Leu Val Leu His Gly Lys Ser Ala Asp Val Ala Lys Arg Ala Ile
 405 410 415
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 Pro Ala Ala Cys Lys Gln Arg Ile Leu Leu Ser Phe Gly Lys Ser Leu
 420 425 430
 10 Ser Arg Lys Gln Val Pro Ser Glu Ser Val Ser Arg Phe Thr Thr Pro
 435 440 445
 15 Leu Thr Pro Pro Pro Met Pro Trp Gly Pro Pro Arg Pro Ala Asn Met
 450 455 460
 20 Ala Arg His Ser Ser Ser Pro Lys His Phe Gly Tyr Ala Pro Asn Ser
 465 470 475 480
 Gly Val Leu Pro Ala Pro Ala Ile Gly Ala His His Ile Pro Pro Ser
 485 490 495
 25 Asp Gly Met Gln Pro Leu Phe Val Ala Pro Ala Pro Val Ala Ala Ala
 500 505 510
 30 Ala Met Pro Phe Pro Ser Pro Val Pro Leu Pro Asn Leu Thr Asn Ser
 515 520 525
 35 Leu Asp Gly Arg Ser Cys Ser Lys Val Cys Ser Thr Thr Thr Pro Ser
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 60 gag cac gtc ggc ccc tac gcg ctc tcc gag ctg cga gaa cat ttt gct 96
 Glu His Val Gly Pro Tyr Ala Leu Ser Glu Leu Arg Glu His Phe Ala
 20 25 30
 65 aat ggg tac atc agt gag agc tca atg ctc tgg gca gaa ggg agg agt 144
 Asn Gly Tyr Ile Ser Glu Ser Ser Met Leu Trp Ala Glu Gly Arg Ser
 35 40 45

	gaa tgg atg cca ttg tgg tgg att cct gac cta ctt gcg gtg gtc aca	192
	Glu Trp Met Pro Leu Ser Ser Ile Pro Asp Leu Leu Ala Val Val Thr	
	50 55 60	
5	aaa aag gat caa cct gat gaa gga att gaa gat gat ttc gat aaa ttt	240
	Lys Lys Asp Gln Pro Asp Glu Gly Ile Glu Asp Asp Phe Asp Lys Phe	
	65 70 75 80	
10	caa aag gag gtt ata gaa gct gag gca gag gtg gaa gcc tcg aca gac	288
	Gln Lys Glu Val Ile Glu Ala Glu Ala Glu Val Glu Ala Ser Thr Asp	
	85 90 95	
15	aag gct gca gat aac gac ata aac caa gaa cat ggg gcc gat gat cct	336
	Lys Ala Ala Asp Asn Asp Ile Asn Gln Glu His Gly Ala Asp Asp Pro	
	100 105 110	
	gat gac cgg cca gca acc cca cca gat ggc gag gac gaa ttt act gat	384
	Asp Asp Arg Pro Ala Thr Pro Pro Asp Gly Glu Asp Glu Phe Thr Asp	
	115 120 125	
20	gat gat ggt act gtt tac aag tgg gat cgt gtc ctg agg gca tgg gtt	432
	Asp Asp Gly Thr Val Tyr Lys Trp Asp Arg Val Leu Arg Ala Trp Val	
	130 135 140	
25	cct caa gat gac cta gaa ggc aaa aat gac aac tat gaa gtt gaa gac	480
	Pro Gln Asp Asp Leu Glu Gly Lys Asn Asp Asn Tyr Glu Val Glu Asp	
	145 150 155 160	
30	atg act ttt gca cat gag gaa gaa gtt ttc caa gca cca gat att gct	528
	Met Thr Phe Ala His Glu Glu Glu Val Phe Gln Ala Pro Asp Ile Ala	
	165 170 175	
	ggg tca acc aca tta gaa gaa aac aat gtt tct gcg gaa att gaa atc	576
	Gly Ser Thr Thr Leu Glu Glu Asn Asn Val Ser Ala Glu Ile Glu Ile	
	180 185 190	
	aaa gaa cca cca aag gta gaa aag aga gca cat aag aag cgg aag tct	624
	Lys Glu Pro Pro Lys Val Glu Lys Arg Ala His Lys Lys Arg Lys Ser	
	195 200 205	
40	tct gaa aag cca gcc gat aaa aag gaa gct tac aaa cct cca gat agt	672
	Ser Glu Lys Pro Ala Asp Lys Lys Glu Ala Tyr Lys Pro Pro Asp Ser	
	210 215 220	
45	tgg gtt gat ctc aaa gtt aac aca cat gtc tac gtt act ggt ttg cct	720
	Trp Val Asp Leu Lys Val Asn Thr His Val Tyr Val Thr Gly Leu Pro	
	225 230 235 240	
50	gat gat gtc aca gct gag gag att gtg gag gta ttt tcc aaa tgt gga	768
	Asp Asp Val Thr Ala Glu Glu Ile Val Glu Val Phe Ser Lys Cys Gly	
	245 250 255	
	att ata aag gag gac cca gag aca aga aaa ccc cga gta aaa atc tat	816
	Ile Ile Lys Glu Asp Pro Glu Thr Arg Lys Pro Arg Val Lys Ile Tyr	
	260 265 270	
	act gac aga gaa aca ggc aga aag aaa ggt gat gcg cta gtg	858
	Thr Asp Arg Glu Thr Gly Arg Lys Lys Gly Asp Ala Leu Val	
	275 280 285	
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 5 Glu His Val Gly Pro Tyr Ala Leu Ser Glu Leu Arg Glu His Phe Ala
 20 25 30
 10 Asn Gly Tyr Ile Ser Glu Ser Ser Met Leu Trp Ala Glu Gly Arg Ser
 35 40 45
 15 Glu Trp Met Pro Leu Ser Ser Ile Pro Asp Leu Leu Ala Val Val Thr
 50 55 60
 Lys Lys Asp Gln Pro Asp Glu Gly Ile Glu Asp Asp Phe Asp Lys Phe
 65 70 75 80
 20 Gln Lys Glu Val Ile Glu Ala Glu Ala Glu Val Glu Ala Ser Thr Asp
 85 90 95
 25 Lys Ala Ala Asp Asn Asp Ile Asn Gln Glu His Gly Ala Asp Asp Pro
 100 105 110
 30 Asp Asp Arg Pro Ala Thr Pro Pro Asp Gly Glu Asp Glu Phe Thr Asp
 115 120 125
 35 Asp Asp Gly Thr Val Tyr Lys Trp Asp Arg Val Leu Arg Ala Trp Val
 130 135 140
 Pro Gln Asp Asp Leu Glu Gly Lys Asn Asp Asn Tyr Glu Val Glu Asp
 145 150 155 160
 40 Met Thr Phe Ala His Glu Glu Glu Val Phe Gln Ala Pro Asp Ile Ala
 165 170 175
 45 Gly Ser Thr Thr Leu Glu Glu Asn Asn Val Ser Ala Glu Ile Glu Ile
 180 185 190
 50 Lys Glu Pro Pro Lys Val Glu Lys Arg Ala His Lys Lys Arg Lys Ser
 195 200 205
 55 Ser Glu Lys Pro Ala Asp Lys Lys Glu Ala Tyr Lys Pro Pro Asp Ser
 210 215 220
 Trp Val Asp Leu Lys Val Asn Thr His Val Tyr Val Thr Gly Leu Pro
 225 230 235 240
 60 Asp Asp Val Thr Ala Glu Glu Ile Val Glu Val Phe Ser Lys Cys Gly
 245 250 255
 65 Ile Ile Lys Glu Asp Pro Glu Thr Arg Lys Pro Arg Val Lys Ile Tyr
 260 265 270

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	1			5					10				15		
20	gcg ttg gcg gtg gcg agc gcc ttc att gat gaa gcg gcg gct gct ggc														96
	Ala Leu Ala Val Ala Ser Ala Phe Ile Asp Glu Ala Ala Ala Ala Gly														
			20					25				30			
25	cgg ggg ctc ggc cat ggc gcc cgc ttc atg agc aag cag ggt cgt gtg														144
	Arg Gly Leu Gly His Gly Ala Arg Phe Met Ser Lys Gln Gly Arg Val														
			35				40					45			
30	aca tac gag aag ctg ccg gag ccg gag ccg aag cca aag cca aag cct														192
	Thr Tyr Glu Lys Leu Pro Glu Pro Glu Pro Lys Pro Lys Pro Lys Pro														
			50				55				60				
35	cat cct aaa ccc acg cca aaa cct gag ccc aag cca gag ccg gag cca														240
	His Pro Lys Pro Thr Pro Lys Pro Glu Pro Lys Pro Glu Pro Glu Pro														
			65			70			75				80		
40	aaa cca gta cct gag cct gag cct aaa ccg gaa cca aag cca gaa cca														288
	Lys Pro Val Pro Glu Pro Glu Pro Glu Pro Lys Pro Glu Pro Lys Pro														
			85				90					95			
45	gag ccg aag cca gag cca aaa cct gag ccg gag cct aaa cct gag cct														384
	Glu Pro Lys Pro Glu Pro Lys Pro Glu Pro Glu Pro Lys Pro Glu Pro														
			115				120					125			
50	aag cca gaa cca aaa cca gaa cca aag ccg tac cca gag ccg aag cca														432
	Lys Pro Glu Pro Lys Pro Glu Pro Lys Pro Tyr Pro Glu Pro Lys Pro														
			130				135				140				
55	gag cca aaa ccg gaa ccg aag ccg gaa cca aaa ccg gag ccc aaa cca														480
	Glu Pro Lys Pro Glu Pro Lys Pro Glu Pro Glu Pro Lys Pro Glu Pro														
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	Lys Pro Glu Pro Lys Pro His Pro Glu Pro Glu Pro Lys Pro Asp Pro														
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	Glu Pro Lys Pro His Pro Glu Pro Glu Pro Glu Pro Lys Pro Glu Pro														
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<220>
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10
 gtt tcg aga caa ttt gtt gac atg tcc cgg ata agg atc gat ggg ctg 96
 Val Ser Arg Gln Phe Val Asp Met Ser Arg Ile Arg Ile Asp Gly Leu
 20 25 30

15
 ctt gca gca ttt ccg aag ctg gtc gga agt gga aag caa cat act tat 144
 Leu Ala Ala Phe Pro Lys Leu Val Gly Ser Gly Lys Gln His Thr Tyr
 35 40 45

20
 gtt gag act gaa aat gtt cgt tat gtc tat caa cca att gaa gca ctg 192
 Val Glu Thr Glu Asn Val Arg Tyr Val Tyr Gln Pro Ile Glu Ala Leu
 50 55 60

25
 tat ttg ctt ctc atc aca aat aag caa agt aac att ctt gaa gat ctg 240
 Tyr Leu Leu Leu Ile Thr Asn Lys Gln Ser Asn Ile Leu Glu Asp Leu
 65 70 75 80

gat act tta agg cta ctc tcc aag ctt ata cct gaa tat gct ccc tct 288
 Asp Thr Leu Arg Leu Leu Ser Lys Leu Ile Pro Glu Tyr Ala Pro Ser
 85 90 95

30
 ttg gat gaa gag ggt gtc tgt aag gca gca ttc gag ctt ctg ttt gcc 336
 Leu Asp Glu Gly Val Cys Lys Ala Ala Phe Glu Leu Leu Phe Ala
 100 105 110

35
 ttt att gaa gcc att tct ctt gga aac aaa gag aac gta act gtt gca 384
 Phe Ile Glu Ala Ile Ser Leu Gly Asn Lys Glu Asn Val Thr Val Ala
 115 120 125

40
 caa gtt aaa caa tac tgt gaa atg gag agc cat gaa gaa aag ctg cac 432
 Gln Val Lys Gln Tyr Cys Glu Met Glu Ser His Glu Glu Lys Leu His
 130 135 140

45
 aag ctg gtt atg caa agc aaa ata aat gaa act aag gat gtc atg agg 480
 Lys Leu Val Met Gln Ser Lys Ile Asn Glu Thr Lys Asp Val Met Arg
 145 150 155 160

50
 agg aaa gtc act gag att gag aaa agc aag act gat aga ggg aag cct 528
 Arg Lys Val Thr Glu Ile Glu Lys Ser Lys Thr Asp Arg Gly Lys Pro
 165 170 175

55
 gac aag gga gga ttt gga tcc ttg aga act cca aac agc ttc agt gac 576
 Asp Lys Gly Gly Phe Gly Ser Leu Arg Thr Pro Asn Ser Phe Ser Asp
 180 185 190

60
 atg ggc att aga ggt ggt ggt cca ggg ggc gat cct ata ttt ggt gat 624
 Met Gly Ile Arg Gly Gly Gly Pro Gly Gly Asp Pro Ile Phe Gly Asp
 195 200 205

65
 atg gac tcg ttc acc cac aag gcc aaa ggc cgc cca tct gct cct gct 672
 Met Asp Ser Phe Thr His Lys Ala Lys Gly Arg Pro Ser Ala Pro Ala
 210 215 220

cct gca tct gct tct act aaa gtt cct ggt ggt atg aaa tta agc aaa 720
 Pro Ala Ser Ala Ser Thr Lys Val Pro Gly Gly Met Lys Leu Ser Lys
 225 230 235 240

gca cag aag aca aac cag ttc ctt gag tct ttg aaa gct gaa gga gaa 768
 Ala Gln Lys Thr Asn Gln Phe Leu Glu Ser Leu Lys Ala Glu Gly Glu

	245	250	255	
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10	tat atc cca cca agc gat cct atc aca gtg aca att gaa gag aag ctc Tyr Ile Pro Pro Ser Asp Pro Ile Thr Val Thr Ile Glu Glu Lys Leu 275 280 285	864		
15	aat gtc act gtt aaa agg gat ggg gga gtt agc aat ttt gat att caa Asn Val Thr Val Lys Arg Asp Gly Gly Val Ser Asn Phe Asp Ile Gln 290 295 300	912		
20	gga acc ctg gct ctc caa att ctg aat gac act gat ggt ttt att cag Gly Thr Leu Ala Leu Ile Leu Asn Asp Thr Asp Gly Phe Ile Gln 305 310 315 320	960		
25	tta cag att gag aac caa gat gta cct ggc ctt aac ttc aag aca cac Leu Gln Ile Glu Asn Gln Asp Val Pro Gly Leu Asn Phe Lys Thr His 325 330 335	1008		
30	ccc aat atc aac aaa gag tta ttc aac agt caa caa att gtg ggg gca Pro Asn Ile Asn Lys Glu Leu Phe Asn Ser Gln Gln Ile Val Gly Ala 340 345 350	1056		
35	aaa gat cca aac agg cct ttc ccc agt ggt caa aat gaa aca ccg ttg Lys Asp Pro Asn Arg Pro Phe Pro Ser Gly Gln Asn Glu Thr Pro Leu 355 360 365	1104		
40	gtg aaa tgg aga atc cag gag ttg aat gag tca tct ctt cca ttg gca Val Lys Trp Arg Ile Gln Glu Leu Asn Glu Ser Ser Leu Pro Leu Ala 370 375 380	1152		
45	gtg aac tgt tgg cct tcg gtg tcc gga aat gaa acc tat gtg aac att Val Asn Cys Trp Pro Val Ser Gly Asn Glu Thr Tyr Val Asn Ile 385 390 395 400	1200		
50	gaa tat gaa gct tca gag atg ttt gat ttg cac aat gtt gtc atc tct Glu Tyr Glu Ala Ser Glu Met Phe Asp Leu His Asn Val Val Ile Ser 405 410 415	1248		
55	atc cct ctc ccc gca ctt agg gag gct cca ggt gtt agg cag ata gac Ile Pro Leu Pro Ala Leu Arg Glu Ala Pro Gly Val Arg Gln Ile Asp 420 425 430	1296		
60	gga gaa tgg agg tat gac tca aga aat tca gtg ttg gag tgg tcc att Gly Glu Trp Arg Tyr Asp Ser Arg Asn Ser Val Leu Glu Trp Ser Ile 435 440 445	1344		
65	att ctt gtt gat caa tca aac cgc agt ggt tct ttg gag ttc act gtc Ile Leu Val Asp Gln Ser Asn Arg Ser Gly Ser Leu Glu Phe Thr Val 450 455 460	1392		
70	cct gca gct gat cca tca aca ttc ttc ccg ata tct gtt ggg ttt tct Pro Ala Ala Asp Pro Ser Thr Phe Phe Pro Ile Ser Val Gly Phe Ser 465 470 475 480	1440		
75	gca tca aat aca ttt agt gat ttg aag gtg acc gcc atc cgt ccg ctg Ala Ser Asn Thr Phe Ser Asp Leu Lys Val Thr Ala Ile Arg Pro Leu 485 490 495	1488		
80	agg gaa ggt agc cca cca aag ttt tct cag agg aat cga ttg gtt act Arg Glu Gly Ser Pro Pro Lys Phe Ser Gln Arg Asn Arg Leu Val Thr 500 505 510	1536		
85	tat aac tac caa gtg gtt tga Tyr Asn Tyr Gln Val Val	1557		

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 <213> Oryza sativa

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 15 Val Ser Arg Gln Phe Val Asp Met Ser Arg Ile Arg Ile Asp Gly Leu
 20 25 30

 20 Leu Ala Ala Phe Pro Lys Leu Val Gly Ser Gly Lys Gln His Thr Tyr
 35 40 45

 25 Val Glu Thr Glu Asn Val Arg Tyr Val Tyr Gln Pro Ile Glu Ala Leu
 50 55 60

 Tyr Leu Leu Leu Ile Thr Asn Lys Gln Ser Asn Ile Leu Glu Asp Leu
 65 70 75 80

 30 Asp Thr Leu Arg Leu Leu Ser Lys Leu Ile Pro Glu Tyr Ala Pro Ser
 85 90 95

 35 Leu Asp Glu Glu Gly Val Cys Lys Ala Ala Phe Glu Leu Leu Phe Ala
 100 105 110

 40 Phe Ile Glu Ala Ile Ser Leu Gly Asn Lys Glu Asn Val Thr Val Ala
 115 120 125

 45 Gln Val Lys Gln Tyr Cys Glu Met Glu Ser His Glu Glu Lys Leu His
 130 135 140

 Lys Leu Val Met Gln Ser Lys Ile Asn Glu Thr Lys Asp Val Met Arg
 145 150 155 160

 50 Arg Lys Val Thr Glu Ile Glu Lys Ser Lys Thr Asp Arg Gly Lys Pro
 165 170 175

 55 Asp Lys Gly Gly Phe Gly Ser Leu Arg Thr Pro Asn Ser Phe Ser Asp
 180 185 190

 60 Met Gly Ile Arg Gly Gly Gly Pro Gly Gly Asp Pro Ile Phe Gly Asp
 195 200 205

 65 Met Asp Ser Phe Thr His Lys Ala Lys Gly Arg Pro Ser Ala Pro Ala
 210 215 220

 Pro Ala Ser Ala Ser Thr Lys Val Pro Gly Gly Met Lys Leu Ser Lys
 225 230 235 240

5	Ala	Gln	Lys	Thr	Asn	Gln	Phe	Leu	Glu	Ser	Leu	Lys	Ala	Glu	Gly	Glu	
					245					250					255		
	Val	Ile	Leu	Glu	Asp	Thr	Gln	Pro	Ser	Ala	Thr	Gln	Ser	Arg	Ser	Ser	
				260					265					270			
10	Tyr	Ile	Pro	Pro	Ser	Asp	Pro	Ile	Thr	Val	Thr	Ile	Glu	Glu	Lys	Leu	
			275					280					285				
15	Asn	Val	Thr	Val	Lys	Arg	Asp	Gly	Gly	Val	Ser	Asn	Phe	Asp	Ile	Gln	
	290						295					300					
20	Gly	Thr	Leu	Ala	Leu	Gln	Ile	Leu	Asn	Asp	Thr	Asp	Gly	Phe	Ile	Gln	
	305					310					315					320	
	Leu	Gln	Ile	Glu	Asn	Gln	Asp	Val	Pro	Gly	Leu	Asn	Phe	Lys	Thr	His	
25					325					330					335		
	Pro	Asn	Ile	Asn	Lys	Glu	Leu	Phe	Asn	Ser	Gln	Gln	Ile	Val	Gly	Ala	
				340					345					350			
30	Lys	Asp	Pro	Asn	Arg	Pro	Phe	Pro	Ser	Gly	Gln	Asn	Glu	Thr	Pro	Leu	
			355					360					365				
35	Val	Lys	Trp	Arg	Ile	Gln	Glu	Leu	Asn	Glu	Ser	Ser	Leu	Pro	Leu	Ala	
	370						375					380					
40	Val	Asn	Cys	Trp	Pro	Ser	Val	Ser	Gly	Asn	Glu	Thr	Tyr	Val	Asn	Ile	
	385					390					395					400	
	Glu	Tyr	Glu	Ala	Ser	Glu	Met	Phe	Asp	Leu	His	Asn	Val	Val	Ile	Ser	
45					405					410					415		
	Ile	Pro	Leu	Pro	Ala	Leu	Arg	Glu	Ala	Pro	Gly	Val	Arg	Gln	Ile	Asp	
				420					425					430			
50	Gly	Glu	Trp	Arg	Tyr	Asp	Ser	Arg	Asn	Ser	Val	Leu	Glu	Trp	Ser	Ile	
			435					440					445				
55	Ile	Leu	Val	Asp	Gln	Ser	Asn	Arg	Ser	Gly	Ser	Leu	Glu	Phe	Thr	Val	
	450						455					460					
	Pro	Ala	Ala	Asp	Pro	Ser	Thr	Phe	Phe	Pro	Ile	Ser	Val	Gly	Phe	Ser	
60	465					470					475					480	
	Ala	Ser	Asn	Thr	Phe	Ser	Asp	Leu	Lys	Val	Thr	Ala	Ile	Arg	Pro	Leu	
					485					490					495		
65	Arg	Glu	Gly	Ser	Pro	Pro	Lys	Phe	Ser	Gln	Arg	Asn	Arg	Leu	Val	Thr	
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	1 5 10 15	
	cca tca ccg tca ccg gtg gcg tcc ggc cgc ctc gtg gca ccg gct gtc	96
	Pro Ser Pro Ser Pro Val Ala Ser Gly Arg Leu Val Ala Pro Ala Val	
25	20 25 30	
	ctc ggt ttc gcc ggg gcc ccg cgg ttc ccg acg ctg cgg gcc gcg cca	144
	Leu Gly Phe Ala Gly Ala Pro Arg Phe Pro Thr Leu Arg Ala Ala Pro	
	35 40 45	
30	cgg cgg ctg acg gcg cgg gcg gtg gcc ggg gac gcc gag gac gag tkg	192
	Arg Arg Leu Thr Ala Arg Ala Val Ala Gly Asp Ala Glu Asp Glu Xaa	
	50 55 60	
35	ggg aag gag ccg gcg gcg gac cag ggc ggt gcc gcc gcg gcg gtg gcc	240
	Gly Lys Glu Pro Ala Ala Asp Gln Gly Gly Ala Ala Ala Val Ala	
	65 70 75 80	
40	gag gcg ccc gcg gat gtg ccg gtg acg agc gag gtc gcg gag ctc aag	288
	Glu Ala Pro Ala Asp Val Pro Val Thr Ser Glu Val Ala Glu Leu Lys	
	85 90 95	
45	gcg aag ctg aag gag gcg ctg tac ggt acg gag cgc ggc ctg cgc gcg	336
	Ala Lys Leu Lys Glu Ala Leu Tyr Gly Thr Glu Arg Gly Leu Arg Ala	
	100 105 110	
	tcc agc gag acg cgc gcg gag gtg gtc gag ctc atc acg cag ctc gag	384
	Ser Ser Glu Thr Arg Ala Glu Val Glu Leu Ile Thr Gln Leu Glu	
	115 120 125	
50	gcc cgc aac ccc acg ccg gcg ccc acc gag gcg ctc acc ctc ctc aac	432
	Ala Arg Asn Pro Thr Pro Ala Pro Thr Glu Ala Leu Thr Leu Leu Asn	
	130 135 140	
55	ggc aag tgg atc ctc gcg tac acc tca ttt tca cag cta ttc cca cta	480
	Gly Lys Trp Ile Leu Ala Tyr Thr Ser Phe Ser Gln Leu Phe Pro Leu	
	145 150 155 160	
60	ttg ggg tct ggt agt ttg cct cag ctt gtc aag gtg gaa gaa ata tca	528
	Leu Gly Ser Gly Ser Leu Pro Gln Leu Val Lys Val Glu Glu Ile Ser	
	165 170 175	
65	caa act att gat tct gag aac ttc acg gtt cag aat tgc atc aag ttt	576
	Gln Thr Ile Asp Ser Glu Asn Phe Thr Val Gln Asn Cys Ile Lys Phe	
	180 185 190	
	tca gga cct tta gca aca act tca gtg tct acc aat gcc aaa ttt gaa	624
	Ser Gly Pro Leu Ala Thr Thr Ser Val Ser Thr Asn Ala Lys Phe Glu	
	195 200 205	

gtt cga agt ccc aaa cgt gta cag atc aaa ttt gat gaa ggc att atc 672
 Val Arg Ser Pro Lys Arg Val Gln Ile Lys Phe Asp Glu Gly Ile Ile
 210 215 220

5

ggc act cca caa ttg act gat tct att gta cta cct gag aag ttt gag 720
 Gly Thr Pro Gln Leu Thr Asp Ser Ile Val Leu Pro Glu Lys Phe Glu
 225 230 235 240

10

tta ttt ggg cag aat att gac ctg acc cca ttg aag ggc ata ttt tca 768
 Leu Phe Gly Gln Asn Ile Asp Leu Thr Pro Leu Lys Gly Ile Phe Ser
 245 250 255

15

tca att gaa aat gca gca tcc tca gtt gct aga acc atc tct ggt caa 816
 Ser Ile Glu Asn Ala Ala Ser Ser Val Ala Arg Thr Ile Ser Gly Gln
 260 265 270

20

cct cca cta aag ata cca att agg act gac aat gct gag tct tgg ttg 864
 Pro Pro Leu Lys Ile Pro Ile Arg Thr Asp Asn Ala Glu Ser Trp Leu
 275 280 285

25

ctc aca acc tac ctt gat gat gag ctt aga atc tcc aga ggt gat ggc 912
 Leu Thr Thr Tyr Leu Asp Asp Glu Leu Arg Ile Ser Arg Gly Asp Gly
 290 295 300

30

agc agc atc ttt gta ctg ttt aag gaa gga agc acc ctc cta tat taa 960
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 305 310 315

35

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 <213> Oryza sativa

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 <222> (64)..(64)
 <223> The 'Xaa' at location 64 stands for Trp, or Leu.

45

Met Ala Gly Ser Ser Ser Leu Ser Thr Leu Ser Leu Cys Thr Gln Ser
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50

Pro Ser Pro Ser Pro Val Ala Ser Gly Arg Leu Val Ala Pro Ala Val
 20 25 30

55

Leu Gly Phe Ala Gly Ala Pro Arg Phe Pro Thr Leu Arg Ala Ala Pro
 35 40 45

60

Arg Arg Leu Thr Ala Arg Ala Val Ala Gly Asp Ala Glu Asp Glu Xaa
 50 55 60

65

Gly Lys Glu Pro Ala Ala Asp Gln Gly Gly Ala Ala Ala Val Ala
 65 70 75 80

Glu Ala Pro Ala Asp Val Pro Val Thr Ser Glu Val Ala Glu Leu Lys
 85 90 95

Ala Lys Leu Lys Glu Ala Leu Tyr Gly Thr Glu Arg Gly Leu Arg Ala
 100 105 110

5 Ser Ser Glu Thr Arg Ala Glu Val Val Glu Leu Ile Thr Gln Leu Glu
 115 120 125
 Ala Arg Asn Pro Thr Pro Ala Pro Thr Glu Ala Leu Thr Leu Leu Asn
 130 135 140
 10 Gly Lys Trp Ile Leu Ala Tyr Thr Ser Phe Ser Gln Leu Phe Pro Leu
 145 150 155 160
 15 Leu Gly Ser Gly Ser Leu Pro Gln Leu Val Lys Val Glu Glu Ile Ser
 165 170 175
 20 Gln Thr Ile Asp Ser Glu Asn Phe Thr Val Gln Asn Cys Ile Lys Phe
 180 185 190
 25 Ser Gly Pro Leu Ala Thr Thr Ser Val Ser Thr Asn Ala Lys Phe Glu
 195 200 205
 Val Arg Ser Pro Lys Arg Val Gln Ile Lys Phe Asp Glu Gly Ile Ile
 210 215 220
 30 Gly Thr Pro Gln Leu Thr Asp Ser Ile Val Leu Pro Glu Lys Phe Glu
 225 230 235 240
 35 Leu Phe Gly Gln Asn Ile Asp Leu Thr Pro Leu Lys Gly Ile Phe Ser
 245 250 255
 40 Ser Ile Glu Asn Ala Ala Ser Ser Val Ala Arg Thr Ile Ser Gly Gln
 260 265 270
 45 Pro Pro Leu Lys Ile Pro Ile Arg Thr Asp Asn Ala Glu Ser Trp Leu
 275 280 285
 Leu Thr Thr Tyr Leu Asp Asp Glu Leu Arg Ile Ser Arg Gly Asp Gly
 290 295 300
 50 Ser Ser Ile Phe Val Leu Phe Lys Glu Gly Ser Thr Leu Leu Tyr
 305 310 315
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 <222> (1)..(126)
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	Thr Gln Gln Thr Lys Gly Arg Leu Thr Val Thr Ile Ser Leu Lys Ala	
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	Tyr Ser Pro Gly Arg Thr Arg Ser Gly	
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	<213> Oryza sativa	
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25	Tyr Ser Pro Gly Arg Thr Arg Ser Gly	
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45	ccg tcg cgc gtg cag cag ggc gcc gcc gac ttc gag gag acg ctc ttc	96
	Pro Ser Arg Val Gln Gln Gly Ala Ala Asp Phe Glu Glu Thr Leu Phe	
	20 25 30	
50	gtg cgc tgc cac ctc tac tgc agc ggc ggc gcc ggc acc ggc aag ccg	144
	Val Arg Cys His Leu Tyr Cys Ser Gly Gly Ala Gly Thr Gly Lys Pro	
	35 40 45	
55	ctc agg ttc gag ccc cgg ccg ttc ctc ctg tcg gcg gtg gcc gtg gaa	192
	Leu Arg Phe Glu Pro Arg Pro Phe Leu Leu Ser Ala Val Ala Val Glu	
	50 55 60	
60	gcc ccc gag ctc gac ttt ggc cgg agc gcc gtc gac ctg agc ctc ctc	240
	Ala Pro Glu Leu Asp Phe Gly Arg Ser Ala Val Asp Leu Ser Leu Leu	
	65 70 75 80	
65	gtg aag gag tcc acg gac aag agc cag caa ggg gag cgt gtc cgg caa	288
	Val Lys Glu Ser Thr Asp Lys Ser Gln Gln Gly Glu Arg Val Arg Gln	
	85 90 95	
65	tgg gac atg gcg ttg ccg ctc gcc ggg aag gcg aag ggc ggc gag ctc	336
	Trp Asp Met Ala Leu Pro Leu Ala Gly Lys Ala Lys Gly Gly Glu Leu	
	100 105 110	

	gtc gtc aaa ctg tcg ttc cag atc atg gac gac ggc ggc gtc ggg ctg	384
	Val Val Lys Leu Ser Phe Gln Ile Met Asp Asp Gly Gly Val Gly Leu	
	115 120 125	
5	ttc aac cag acc gga gca gca acc aag att aac tcg tcg tcg tct	432
	Phe Asn Gln Thr Gly Ala Ala Thr Lys Ile Asn Ser Ser Ser Ser	
	130 135 140	
10	tct tcc ttg ttt gca cgg aag cag agc aag cta tcc ttc agc atc acg	480
	Ser Ser Leu Phe Ala Arg Lys Gln Ser Lys Leu Ser Phe Ser Ile Thr	
	145 150 155 160	
15	agc ccg aag gtg tcg cgg tcg gag ccg aag ctg acg ccg aca aag ggc	528
	Ser Pro Lys Val Ser Arg Ser Glu Pro Lys Leu Thr Pro Thr Lys Gly	
	165 170 175	
20	tcg ccg tcg ccg gac ttg cga ggc att gac gac ttc aag ctc gac gag	576
	Ser Pro Ser Pro Asp Leu Arg Gly Ile Asp Asp Phe Lys Leu Asp Glu	
	180 185 190	
25	ccc agt ttg cca tcg ctg gca gag gcc aag caa gag cag aag gag cca	624
	Pro Ser Leu Pro Ser Leu Ala Glu Ala Lys Gln Glu Gln Lys Glu Pro	
	195 200 205	
30	gag ccg ccg gag ccg gag gag aag gtc gat gac tcg gag ttc ccg gag	672
	Glu Pro Pro Glu Pro Glu Glu Lys Val Asp Asp Ser Glu Phe Pro Glu	
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35	ttc gac gta gtg gac aaa gg	692
	Phe Asp Val Val Asp Lys	
	225 230	
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55	Val Arg Cys His Leu Tyr Cys Ser Gly Gly Ala Gly Thr Gly Lys Pro	
	35 40 45	
60	Leu Arg Phe Glu Pro Arg Pro Phe Leu Leu Ser Ala Val Ala Val Glu	
	50 55 60	
65	Ala Pro Glu Leu Asp Phe Gly Arg Ser Ala Val Asp Leu Ser Leu Leu	
	65 70 75 80	
70	Val Lys Glu Ser Thr Asp Lys Ser Gln Gln Gly Glu Arg Val Arg Gln	
	85 90 95	
75	Trp Asp Met Ala Leu Pro Leu Ala Gly Lys Ala Lys Gly Gly Glu Leu	
	100 105 110	

Val Val Lys Leu Ser Phe Gln Ile Met Asp Asp Gly Gly Val Gly Leu
115 120 125

5 Phe Asn Gln Thr Gly Ala Ala Thr Lys Ile Asn Ser Ser Ser Ser
130 135 140

10 Ser Ser Leu Phe Ala Arg Lys Gln Ser Lys Leu Ser Phe Ser Ile Thr
145 150 155 160

15 Ser Pro Lys Val Ser Arg Ser Glu Pro Lys Leu Thr Pro Thr Lys Gly
165 170 175

Ser Pro Ser Pro Asp Leu Arg Gly Ile Asp Asp Phe Lys Leu Asp Glu
180 185 190

20 Pro Ser Leu Pro Ser Leu Ala Glu Ala Lys Gln Glu Gln Lys Glu Pro
195 200 205

25 Glu Pro Pro Glu Pro Glu Glu Lys Val Asp Asp Ser Glu Phe Pro Glu
210 215 220

30 Phe Asp Val Val Asp Lys
225 230

35 <210> 49
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<212> DNA
<213> Oryza sativa

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<400> 49

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Leu Asp Glu Val Met Ala Val Ser Pro Val Gly Leu Gly Arg Arg Ser
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50 cgg cag ata ttc gac gag gtg tgg cgc aag ttc tcg cgg ctg ggg cag 96
Arg Gln Ile Phe Asp Glu Val Trp Arg Lys Phe Ser Arg Leu Gly Gln
20 25 30

55 atg tcg agc gcg tcg tcg acg gcg ctg gcg gag gag gag cag gcc gtg 144
Met Ser Ser Ala Ser Ser Thr Ala Leu Ala Glu Glu Glu Gln Ala Val
35 40 45

60 ctc atc cgc ggc gga ccc atg tgc gag ttc acc gtc ccc ggc gcg cag 192
Leu Ile Arg Gly Gly Pro Met Cys Glu Phe Thr Val Pro Gly Ala Gln
50 55 60

65 gac acc acc gtc ctc gtc gtc ggc gcc acc agc cgc atc ggc cgc atc 240
Asp Thr Thr Val Leu Val Val Gly Ala Thr Ser Arg Ile Gly Arg Ile
65 70 75 80

65 gtc gtc cgc aag ctc atg ctc cgc ggg tac aat gtc aag gct tta gtt 288
Val Val Arg Lys Leu Met Leu Arg Gly Tyr Asn Val Lys Ala Leu Val
85 90 95

aga agg aat gat gct gaa gtg ata gat atg ctc cca agg tcg gtg gat 336

	Arg	Arg	Asn	Asp	Ala	Glu	Val	Ile	Asp	Met	Leu	Pro	Arg	Ser	Val	Asp	
			100						105					110			
5	att	gtt	gtc	ggt	gat	gtt	ggt	gat	cct	tca	act	gtc	aaa	tcg	gct	gta	384
	Ile	Val	Val	Gly	Asp	Val	Gly	Asp	Pro	Ser	Thr	Val	Lys	Ser	Ala	Val	
			115					120					125				
10	tca	ggt	tgc	agc	aag	ata	atc	tat	tgc	gca	act	gca	cgc	tca	act	att	432
	Ser	Gly	Cys	Ser	Lys	Ile	Ile	Tyr	Cys	Ala	Thr	Ala	Arg	Ser	Thr	Ile	
			130				135					140					
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	Lys	Ser	Ser	Lys	Ser	Lys	Leu	Leu	Ile	Ala	Lys	Phe	Lys	Ser	Pro	Lys	
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	Ser	Leu	Asn	Gly	Trp	Glu	Val	Asp	Gln	Gly	Ser	Tyr	Phe	Pro	Asn	Thr	
			195					200					205				
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	Phe	Ala	Ser	Arg	Phe	Asp	Glu	Gly	Ile	Asp	Ala	Ser	Phe	Asp	Phe	Ser	
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	Tyr	Val	Glu	Ile	Ser	Lys	Arg	Leu	Ser	Leu	Pro	Leu	Gly	Ser	Thr	Leu	
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	Asp	Arg	Tyr	Asp	Gly	Leu	Leu	Phe	Ser	Val	Gly	Gly	Asn	Gly	Arg	Ser	
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	Tyr	Val	Val	Ile	Leu	Glu	Thr	Gly	Pro	Leu	Ala	Asp	Thr	Ser	Gln	Ser	
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	Ile	Ser	Gln	Gly	Ile	Ser	Cys	Ala	Asp	Val	Ala	Asp	Ile	Cys	Val	Lys	
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	Glu	Tyr	Val	Ala	Lys	Gln	Gly	Asn	Glu	Leu	Tyr	Glu	Leu	Val	Ala	His	
	465					470				475						480	
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20	Lys Ala Phe Gln Asp Tyr Tyr Asn Glu Leu Ala Gln Leu Arg Ala Gly 165 170 175		
25	Lys Ser Ser Lys Ser Lys Leu Leu Ile Ala Lys Phe Lys Ser Pro Lys 180 185 190		
30	Ser Leu Asn Gly Trp Glu Val Asp Gln Gly Ser Tyr Phe Pro Asn Thr 195 200 205		
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50	Asp Arg Tyr Asp Gly Leu Leu Phe Ser Val Gly Gly Asn Gly Arg Ser 260 265 270		
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60	Lys Lys Tyr Phe Ala Arg Met Thr Thr Lys Val Gly Phe Cys Arg Val 290 295 300		
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70	Leu Asp Pro Phe Leu Val His Thr Leu Thr Ile Arg Phe Glu Pro Lys 325 330 335		
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80	Phe Glu Leu Ile Leu Glu Tyr Ile Lys Ala Leu Pro Thr Gly Gln Glu 355 360 365		
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10	Arg Arg Ser Gly Leu Gly Tyr Thr Ile Val Arg Pro Gly Pro Leu Gln			
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15	Glu Glu Pro Gly Gly Gln Arg Ala Leu Ile Phe Asp Gln Gly Asn Arg			
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25	Ala Leu His Asp Ser Thr Ala Arg Asn Lys Ser Phe Asp Val Cys Tyr			
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	Met Leu Leu Leu Asp Glu Arg Gln Glu Asn Ala Met Phe Cys Phe Glu			

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	130	135	140	
15	gaa atg gcg cgt gat ctg tca cct gag gtg gag agg cta ttg caa agt Glu Met Ala Arg Asp Leu Ser Pro Glu Val Glu Arg Leu Leu Gln Ser	145	150	155
	160	165	170	
20	agg gaa cca aat acc aag aag aag gct gcc tta tgc tct ata agg atc Arg Glu Pro Asn Thr Lys Lys Lys Ala Ala Leu Cys Ser Ile Arg Ile	175	180	185
	190	195	200	
25	gta cgg aag gtt cca gat ttg gca gag aac ttc atg ggc tct gct gtt Val Arg Lys Val Pro Asp Leu Ala Glu Asn Phe Met Gly Ser Ala Val	205	210	215
	220	225	230	
30	tca cta ctg aag gaa aaa cat cac ggg gtt ctc ata tct gct gtt cag Ser Leu Leu Lys Glu Lys His His Gly Val Leu Ile Ser Ala Val Gln	235	240	245
	250	255	260	
35	ctc tgc gca gaa ctt tgt aaa gca agc aaa gag gca ttg gag tac ctg Leu Cys Ala Glu Leu Cys Lys Ala Ser Lys Glu Ala Leu Glu Tyr Leu	265	270	275
	280	285	290	
40	agg aag aac tgc ctt gat ggt ttg gtc aga ata ctg aga gat gtg tcc Arg Lys Asn Cys Leu Asp Gly Leu Val Arg Ile Leu Arg Asp Val Ser	295	300	305
	310	315	320	
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	340	345	350	
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	370	375	380	
55	gat gca gat tgc agt gag ttt gtg aat gat att ctt gct cag ctg tgc Asp Ala Asp Cys Ser Glu Phe Val Asn Asp Ile Leu Ala Gln Leu Cys	385	390	395
	400	405	410	
60	tct gta tct tat atc gaa tta ttt gca ttg cat ttc cag gtt gca aca Ser Val Ser Tyr Ile Glu Leu Phe Ala Leu His Phe Gln Val Ala Thr	415	420	425
	430	435	440	
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70	gtt gag act ata atg ggc atc gaa gct act agt ggt tta cgt gtg ctg Val Glu Thr Ile Met Gly Ile Glu Ala Thr Ser Gly Leu Arg Val Leu	475	480	485
	490	495	500	
75	gca atc aat atc ttg ggt aga ttt ctg tcc aac cgt gat aat aac atc Ala Ile Asn Ile Leu Gly Arg Phe Leu Ser Asn Arg Asp Asn Asn Ile	505	510	515
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10	act ttt ttg ttc att cag tac ata ttt ggt ttg aca agt gaa gca agt Thr Phe Leu Phe Ile Gln Tyr Ile Phe Gly Leu Thr Ser Glu Ala Ser	660	665	670	2016
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20	gca agc aca gat att ctg atg gat ctt cta tca att ggt tct tct cca Ala Ser Thr Asp Ile Leu Met Asp Leu Leu Ser Ile Gly Ser Ser Pro	690	695	700	2112
25	gta caa aat ggc cca cca aca gta tca aac ttt agc ctt cct ggt caa Val Gln Asn Gly Pro Thr Val Ser Asn Phe Ser Leu Pro Gly Gln	705	710	715	2160
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35	ttg aag atc act ttc aat ttt aag aag cag tct gga aaa cct cag gag Leu Lys Ile Thr Phe Asn Phe Lys Lys Gln Ser Gly Lys Pro Gln Glu	740	745	750	2256
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45	gat ttc atc ttt cag gca gct gta cca aag ttt atc cag ttg cgt ttg Asp Phe Ile Phe Gln Ala Ala Val Pro Lys Phe Ile Gln Leu Arg Leu	770	775	780	2352
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65	aat cgg agg aga tgc tcg aca aaa tat gac ctg gta aag cac tcg agt Asn Arg Arg Arg Cys Ser Thr Lys Tyr Asp Leu Val Lys His Ser Ser	835	840	845	2544
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75	gca cta gtg cac gag tac tta gcc tgt gtc tat cgc ttt cgg ccg ttt Ala Leu Val His Glu Tyr Leu Ala Cys Val Tyr Arg Phe Arg Pro Phe	865	870	875	2640
80	cga aac gct ccc gtc caa gca ata aga cga gac gtg gct gag ata taa Arg Asn Ala Pro Val Gln Ala Ile Arg Arg Asp Val Ala Glu Ile	885	890	895	2688

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 25 Ile Ala Ala Ala Gly Phe Pro Glu Lys Arg Ile Gly Tyr Leu Gly Leu
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 85 90 95
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 130 135 140
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 Phe Leu His Ile Arg Val Leu Lys Leu Met Arg Ile Leu Gly Gln Gly
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 Cys Ser Ile Val Glu Lys Phe Ser Gln Asp Lys Leu Trp Tyr Leu Asp
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 50 Asp Glu Asn Thr Ala Tyr Pro Pro Ile Thr Ala Phe Gln Ser Ala Ala
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Thr Gln Ser Leu Ser Val Thr Asn Asn Gln His Gly Gln Lys Pro Leu
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 Asn Arg Arg Arg Cys Ser Thr Lys Tyr Asp Leu Val Lys His Ser Ser
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 Leu Leu Ala Ile Glu Ala Ile Asn Pro Pro Leu Tyr Arg Ser Glu Arg
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 Thr Gly Ala Ala Asp Ala Ala Glu Leu Lys Glu Arg Ile Glu Ala Arg
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 acc aag aag gcc gtg cag atc gtc tcc gcc ggc gcc ggc ccg ccg ccc 144
 Thr Lys Lys Ala Val Gln Ile Val Ser Ala Gly Ala Gly Pro Pro Pro
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 Lys Lys Asp Lys Glu Glu Lys Lys Asp Lys Asp Lys Lys Gly Gly Gly
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 Asp Asp Lys Lys Ala Glu Lys Glu Lys Gly Gly Gly Gly Gly Asp Lys
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 Lys Ala Glu Lys Glu Lys Gly Gly Gly Asp Lys Pro Lys Glu Glu Lys
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 Lys Ala Lys Glu Pro Lys Glu Glu Thr Val Thr Leu Lys Ile Arg Leu
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 Lys Thr Ser Val Asn Val Arg Ile Gln Gly His Ser Leu Arg Leu Val
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	Ile Asn Pro Gly Asp Leu Ser Val Leu His Asp Leu Arg Arg Ser Leu	
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	Thr Xaa Ala Glu Ala Val Leu Gly Trp Gly Asp Pro Asn Ala Ala Asp	
	35 40 45	
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	Pro Cys Ala Ala Trp Pro His Ile Ser Cys Asp Arg Ala Gly Arg Val	
	50 55 60	
	aac aac atc gac ctc aag aac gcc ggc ctc gcc ggg acg ctc ccc ttc	240
	Asn Asn Ile Asp Leu Lys Asn Ala Gly Leu Ala Gly Thr Leu Pro Phe	
	65 70 75 80	
65	acc ttt gcc gcg ctc gac gcg ctc cag gac ctc agc ctc cag aac cac	288
	Thr Phe Ala Ala Leu Asp Ala Leu Gln Asp Leu Ser Leu Gln Asn His	
	85 90 95	

	aac ctc tcc ggc gac ctc ccg tcc ttc cgc ggc atg gcc tcc ctc cgc	336
	Asn Leu Ser Gly Asp Leu Pro Ser Phe Arg Gly Met Ala Ser Leu Arg	
	100 105 110	
5	cac gcc ttc ctc aac aac aac tcc ttc cgc tcc atc ccc gcc gac ttc	384
	His Ala Phe Leu Asn Asn Asn Ser Phe Arg Ser Ile Pro Ala Asp Phe	
	115 120 125	
10	ttc agc ggc ctc acc tcc ctc ctc gtc atc tcc ctc gac cag aac ccg	432
	Phe Ser Gly Leu Thr Ser Leu Val Ile Ser Leu Asp Gln Asn Pro	
	130 135 140	
15	ctc aac gtc tcc tcc ggg ggg tgg acg atc ccc gcc gac gtc gcc gcc	480
	Leu Asn Val Ser Ser Gly Gly Trp Thr Ile Pro Ala Asp Val Ala Ala	
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	Ala Gln Gln Leu Gln Ser Leu Ser Leu Asn Gly Cys Asn Leu Thr Gly	
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25	gcc atc ccg gac ttc ctc ggc gcc atg aac agc ctc cag gag ctc aag	576
	Ala Ile Pro Asp Phe Leu Gly Ala Met Asn Ser Leu Gln Glu Leu Lys	
	180 185 190	
30	ctc gcc tac aac gcc ctc tcc gga ccc atc ccc tcc acc ttc aac gcc	624
	Leu Ala Tyr Asn Ala Leu Ser Gly Pro Ile Pro Ser Thr Phe Asn Ala	
	195 200 205	
35	tcc ggg ttg cag acg ctc tgg ctc aac aac cag cac ggc gtc ccc aag	672
	Ser Gly Leu Gln Thr Leu Trp Leu Asn Asn Gln His Gly Val Pro Lys	
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40	ctc tcc ggc acg ctc gac ctc atc gcc acc atg ccc aac ctc gaa cag	720
	Leu Ser Gly Thr Leu Asp Leu Ile Ala Thr Met Pro Asn Leu Glu Gln	
	225 230 235 240	
45	gca tgg ctc cac ggc aac gac ttc tcc ggc ccc atc ccg gac tcc atc	768
	Ala Trp Leu His Gly Asn Asp Phe Ser Gly Pro Ile Pro Asp Ser Ile	
	245 250 255	
50	gcc gac tgc aag cgc ctc tcc gac ctc tgc ctc aac agc aac cag ctc	816
	Ala Asp Cys Lys Arg Leu Ser Asp Leu Cys Leu Asn Ser Asn Gln Leu	
	260 265 270	
55	gtc ggc ctc gtc cca ccg gcg ctc gag tcc atg gcc ggc ctc aag tcc	864
	Val Gly Leu Val Pro Pro Ala Leu Glu Ser Met Ala Gly Leu Lys Ser	
	275 280 285	
60	gtt cag ctc gac aac aac aat ctc ttg ggc ccc gtc ccg gcg atc aag	912
	Val Gln Leu Asp Asn Asn Asn Leu Leu Gly Pro Val Pro Ala Ile Lys	
	290 295 300	
65	gcg ccc aag tac acc tac tca cag aac ggg ttc tgc gcc gac aag ccg	960
	Ala Pro Lys Tyr Thr Tyr Ser Gln Asn Gly Phe Cys Ala Asp Lys Pro	
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70	ggg gtc gcc tgc tgc cct cag gtg atg gca ttg ctt cac ttc ctc gcc	1008
	Gly Val Ala Cys Ser Pro Gln Val Met Ala Leu Leu His Phe Leu Ala	
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	Glu Val Asp Tyr Pro Lys Arg Leu Val Ala Ser Trp Ser Gly Asn Asn	
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	Ser Cys Val Asp Trp Leu Gly Ile Ser Cys Val Ala Gly Asn Val Thr	
	355 360 365	

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	Leu Gly Asn Leu Ser Glu Leu Ser Asp Ile Asn Leu Ile Gly Asn Asn 385 390 395 400	
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	Leu Thr Gly His Val Pro Asp Ser Leu Thr Ser Leu Arg Leu Leu Gln 405 410 415	
20	aag ctg gac ctg tcc ggg aac gac ctg acc ggg ccg ctg ccc acc ttc	1296
	Lys Leu Asp Leu Ser Gly Asn Asp Leu Thr Gly Pro Leu Pro Thr Phe 420 425 430	
25	agc ccg agt gtg aag gtg aat gtg acc ggc aat ctc aac ttc aat ggg	1344
	Ser Pro Ser Val Lys Val Asn Val Thr Gly Asn Leu Asn Phe Asn Gly 435 440 445	
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	Thr Ala Pro Gly Ser Ala Pro Ser Lys Asp Thr Pro Gly Ser Ser Ser 450 455 460	
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	Ser Arg Ala Pro Thr Leu Pro Gly Gln Gly Val Leu Pro Glu Asn Lys 465 470 475 480	
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	Lys Lys Arg Ser Ala Val Val Leu Ala Thr Thr Ile Pro Val Ala Val 485 490 495	
45	agt gtg gtg gct ctg gct tca gtg tgt gcc gtg ctc atc ttc cgt aag	1536
	Ser Val Val Ala Leu Ala Ser Val Cys Ala Val Leu Ile Phe Arg Lys 500 505 510	
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	Lys Arg Gly Ser Val Pro Pro Asn Ala Ala Ser Val Val Val His Pro 515 520 525	
55	cgc gag aat tct gac cca gac aac ttg gtc aag att gtc atg gtg aac	1632
	Arg Glu Asn Ser Asp Pro Asp Asn Leu Val Lys Ile Val Met Val Asn 530 535 540	
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65	agc agc cgc gct agt gat gtt cac atg atc gat acg ggc aat ttc gtg	1728
	Ser Ser Arg Ala Ser Asp Val His Met Ile Asp Thr Gly Asn Phe Val 565 570 575	
70	att gct gtg cag gtc ctc cgt ggc gca acc aag aac ttt acc cag gac	1776
	Ile Ala Val Gln Val Leu Arg Gly Ala Thr Lys Asn Phe Thr Gln Asp 580 585 590	
75	aat gtg ctt ggc cgt ggg ggc ttt ggt gtc gtc tac aag ggt gag ctg	1824
	Asn Val Leu Gly Arg Gly Gly Phe Gly Val Val Tyr Lys Gly Glu Leu 595 600 605	
80	cat gac ggc acg atg att gct gtg aag agg atg gag gct gca gtg atc	1872
	His Asp Gly Thr Met Ile Ala Val Lys Arg Met Glu Ala Ala Val Ile 610 615 620	
85	agc aac aag gcc ttg gat gag ttc caa gcc gag att acc att cta acc	1920
	Ser Asn Lys Ala Leu Asp Glu Phe Gln Ala Glu Ile Thr Ile Leu Thr 625 630 635 640	

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	Lys Val Arg His Arg Asn Leu Val Ser Ile Leu Gly Tyr Ser Ile Glu	
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5	ggg aat gag agg ctg ctg gtc tat gag tac atg tcc aac ggg gct ttg	2016
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10	agc aag cat ctg ttc cag tgg aag cag ttt gaa tta gaa ccc ctc tca	2064
	Ser Lys His Leu Phe Gln Trp Lys Gln Phe Glu Leu Glu Pro Leu Ser	
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	Trp Lys Lys Arg Leu Asn Ile Ala Leu Asp Val Ala Arg Gly Met Glu	
	690 695 700	
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	Tyr Leu His Asn Leu Ala His Gln Cys Tyr Ile His Arg Asp Leu Lys	
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25	tca gca aac att ctc ctc ggc gac gat ttc cga gca aag gta tca gac	2208
	Ser Ala Asn Ile Leu Leu Gly Asp Asp Phe Arg Ala Lys Val Ser Asp	
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	Phe Gly Leu Val Lys His Ala Pro Asp Gly Asn Phe Ser Val Ala Thr	
	740 745 750	
35	aga ctc gct gga act ttt ggg tac ttg gct cct gaa tat gct gtg act	2304
	Arg Leu Ala Gly Thr Phe Gly Tyr Leu Ala Pro Glu Tyr Ala Val Thr	
	755 760 765	
40	ggg aaa atc acg aca aaa gca gat gtc ttc agc ttt ggg gta gtg ctg	2352
	Gly Lys Ile Thr Thr Lys Ala Asp Val Phe Ser Phe Gly Val Val Leu	
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	785 790 795 800	
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	Glu Glu Thr Arg Tyr Leu Ala Ser Trp Phe Cys Gln Ile Arg Lys Asp	
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	Glu Asp Arg Leu Arg Ala Ala Ile Asp Pro Thr Leu Asp Gln Ser Asp	
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60	gag act ttt gag agc atc tcc gtg atc gca gag ctt gct ggc cac tgc	2544
	Glu Thr Phe Glu Ser Ile Ser Val Ile Ala Glu Leu Ala Gly His Cys	
	835 840 845	
65	aca tcc cgg gaa ccc acc cag cga ccg gac atg ggc cac gcc gtg aac	2592
	Thr Ser Arg Glu Pro Thr Gln Arg Pro Asp Met Gly His Ala Val Asn	
	850 855 860	
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	Val Leu Val Pro Met Val Glu Lys Trp Lys Pro Val Asn Asp Glu Thr	
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	Glu Asp Tyr Met Gly Ile Asp Leu His Gln Pro Leu Leu Gln Met Val	
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 His Ala Phe Leu Asn Asn Asn Ser Phe Arg Ser Ile Pro Ala Asp Phe
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 15 Lys Arg Gly Ser Val Pro Pro Asn Ala Ala Ser Val Val Val His Pro
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 20 Arg Glu Asn Ser Asp Pro Asp Asn Leu Val Lys Ile Val Met Val Asn
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 25 Asn Asp Gly Asn Ser Ser Ser Thr Gln Gly Asn Thr Leu Ser Gly Ser
 545 550 555 560
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 55 Ser Lys His Leu Phe Gln Trp Lys Gln Phe Glu Leu Glu Pro Leu Ser
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 60 Trp Lys Lys Arg Leu Asn Ile Ala Leu Asp Val Ala Arg Gly Met Glu
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<213> Oryza sativa

<400> 62

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 10 Arg Arg Gln His Val Val Val Leu Leu Pro Pro Pro Leu Ala Val Leu
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 15 Glu His Glu Val Val Glu Asp Gly Ala Arg Asp Glu Pro Ala Arg Asp
 35 40 45
 Val Gly Arg Arg Arg Arg Arg His Pro Gly Glu Pro Val Gly Asp Asp
 50 55 60
 20 Gly Asp Val Asp Glu Arg Asp Pro Leu Leu Leu Arg Glu Arg Pro Ala
 65 70 75 80
 25 Glu Gln Pro His Arg His Gly Gln His Gly Ala Gly Glu Glu Gln Pro
 85 90 95
 30 His Gln Val Ala Val Gln Ala Val Ala Ala Glu Gln Pro Gly Gly Ala
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 35 Asp Glu Pro Pro Asp His Arg Arg Val Glu Arg Asp Pro Val Leu Gly
 115 120 125
 Ala Arg Pro Arg Ala Val Arg Val Gln Arg Leu His Val Ala Asp Val
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 40 Val Asp Ala Ala Gln His Pro Pro Arg His Arg Gln Val His His Ala
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 45 Gly Asp His Arg Ala His Gln Leu Arg Arg Val His Ala Pro Arg Arg
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 50 Asp Leu His Val Val Pro Gln Leu Glu Val Arg Glu Glu Arg Gln Arg
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 55 Val His Arg Ala Asp Pro Pro Val Asp Leu Glu Gln Gln Val Arg Asp
 195 200 205
 Arg Leu Pro Arg Gln Arg Val Pro Asp His Glu Leu Arg Asp Asp Val
 210 215 220
 60 Val Pro Arg Leu Leu Val Gly Gly Gly Leu Asp Asp Ala Asp Gly Glu
 225 230 235 240
 65 Gly Asp Asp Glu Gly Glu Gly Glu Gly Glu Glu His Pro Pro Pro Arg
 245 250 255

Gln Leu His Leu Leu Pro Val His Glu Arg His Asp Gln Arg His Gly
 260 265 270

5 Asp Ala Ala Asp Glu Gln His Glu Glu Pro Pro Leu Arg His Leu Leu
 275 280 285

10 Val Pro Pro His Gln Leu Arg Val His Val His Leu Arg Arg Arg Gly
 290 295 300

15 Ala His Arg Arg Pro Ala Leu Pro Pro Asp Val Pro Ala Val Glu Gln
 305 310 315 320

Arg His Val His Asp Arg Arg Arg Glu Pro Gln Glu Pro Gly Pro Asp
 325 330 335

20 Gly Asp Gly Glu Gln Arg Ala Gln Val Gln Leu Pro Val Ala Leu Val
 340 345 350

25 Arg Arg His Val Glu Val Glu Leu Pro Arg Glu His Leu Gly Gly Val
 355 360 365

30 Val Leu Leu Pro Gly Arg Arg Glu Gln Leu Val Gly Glu Asp Trp Glu
 370 375 380

35 Leu Pro Arg Val Glu Arg Val Glu Leu Pro Val Ala Glu Arg His Asp
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 Glu Trp Ser Gly Glu Ala Val Val Tyr Val Asn Gly Val Arg Arg Val
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ctc ccc gac ggc ctc gct cac ctc acc ctg ctc caa tac ctc aga gac 144

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	Gly	Phe	Cys	Thr	Pro	Gly	Phe	Val	Met	Ser	Met	Tyr	Ala	Leu	Leu	Arg	
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	Ser	Ser	Glu	Gln	Pro	Pro	Thr	Glu	Glu	Gln	Ile	Glu	Asp	Ser	Leu	Ala	
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	Asn	Ala	Tyr	Ser	Glu	Lys	Glu	Leu	Ile	Phe	Pro	Pro	Glu	Leu	Gln	Leu	
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	Arg	Lys	Val	Thr	Ser	Leu	Lys	Leu	Asn	Gly	Phe	Asn	Gly	Ile	Arg	Trp	
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	Tyr	Arg	Pro	Leu	Lys	Leu	Lys	Gln	Val	Leu	His	Leu	Lys	Ala	Cys	Tyr	
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	Ser	Ser	Val	Arg	Leu	Ala	Gln	Leu	Gln	Asn	Phe	Leu	Arg	Lys	Val	Ile	
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	Leu	Glu	Arg	Asp	Ser	His	Glu	Ile	Ser	Ser	Cys	Glu	Ala	Ile	Leu	Arg	
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	Gln	Leu	Lys	Trp	Phe	Ala	Gly	Thr	Gln	Ile	Arg	Asn	Val	Ala	Ser	Val	
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	Ile	Arg	Thr	Ile	Pro	Ala	Lys	Asp	Phe	Phe	Leu	Gly	Tyr	Arg	Lys	Val	
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	Asp	Leu	Lys	Pro	Asp	Glu	Ile	Leu	Leu	Ser	Val	Ile	Leu	Pro	Trp	Thr	
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	Asp	Asp	Ile	Ala	Leu	Val	Asn	Ala	Gly	Met	Arg	Val	Tyr	Ile	Arg	Lys	
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	Val	Glu	Gly	Asp	Trp	Ile	Ile	Ser	Asp	Val	Ser	Ile	Ile	Tyr	Gly	Gly	
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	Val	Ala	Ala	Val	Ser	His	Arg	Ala	Ser	Lys	Thr	Glu	Thr	Phe	Leu	Thr	
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65	gga	aaa	aaa	tgg	gac	tat	gga	ttg	ttg	gat	aag	act	ttt	gat	ctg	ttg	1584
	Gly	Lys	Lys	Trp	Asp	Tyr	Gly	Leu	Leu	Asp	Lys	Thr	Phe	Asp	Leu	Leu	
			515					520					525				
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	Lys	Glu	Asp	Val	Val	Leu	Ala	Glu	Asn	Ala	Pro	Gly	Gly	Met	Val	Glu	
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	Phe	Arg	Ser	Ser	Leu	Thr	Leu	Ser	Phe	Phe	Phe	Lys	Phe	Phe	Leu	His	
	545					550					555					560	
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	625					630					635					640	
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	Asn	Ile	Pro	Leu	Ser	Ser	Ile	Phe	Ile	Ser	Glu	Thr	Ser	Thr	Asp		
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35	aca gta Thr Val 1220	gat att gtt atg Asp Ile Val Met 1225	gat ctt ggc tgt tca Asp Leu Gly Cys Ser 1230	att aat ccg gct Ile Asn Pro Ala	3699
40	att gat Ile Asp 1235	att ggc cag att Ile Gly Gln Ile 1240	gaa gga ggt ttt atc Glu Gly Gly Phe Ile 1245	caa gga tta ggt Gln Gly Leu Gly	3744
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30	gca aga gag tca aaa cat tca gaa agc aag agc att gga tat gtg tta Ala Arg Glu Ser Lys His Ser Glu Ser Lys Ser Ile Gly Tyr Val Leu 770 775 780			2352
35	gat gaa tgg gac gag gag tat gac cgt gga aag acc aag aaa atc aga Asp Glu Trp Asp Glu Glu Tyr Asp Arg Gly Lys Thr Lys Lys Ile Arg 785 790 795 800			2400
40	aat tca aag gaa gac tac ggt gga cca aac ccc ttc cag gag gag gcc Asn Ser Lys Glu Asp Tyr Gly Gly Pro Asn Pro Phe Gln Glu Glu Ala 805 810 815			2448
45	aac tac atc tca cag aga aac atg aaa cag agg acc tat caa ccc aaa Asn Tyr Ile Ser Gln Arg Asn Met Lys Gln Arg Thr Tyr Gln Pro Lys 820 825 830			2496
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70	Gly Lys His Lys Ser Ser Cys Arg Thr Ala Gly Phe Cys Ala Leu Cys 35 40 45			
75	Ala Leu Gln Asn His Val Lys Thr Ala Leu Gln Ser Thr Gly Lys Ile 50 55 60			
80	Val Thr Pro Ser Gln Ile Val Lys Asn Leu Arg Cys Ile Ser Arg Ser 65 70 75 80			

5 Phe Arg Asn Ser Arg Gln Glu Asp Ala His Glu Leu Met Val Asn Leu
 85 90 95
 Leu Glu Ser Met His Lys Cys Cys Leu Pro Ser Gly Val Pro Ser Glu
 100 105 110
 10 Ser Pro Ser Ala Tyr Glu Lys Ser Leu Val His Lys Ile Phe Gly Gly
 115 120 125
 15 Arg Leu Arg Ser Gln Val Lys Cys Thr Gln Cys Ser His Cys Ser Asn
 130 135 140
 20 Lys Phe Asp Pro Phe Leu Asp Leu Ser Leu Asp Ile Gly Lys Ala Thr
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 Ser Leu Val Arg Ala Leu Gln Asn Phe Thr Ala Glu Glu Leu Leu Asp
 165 170 175
 25 Gly Gly Glu Lys Gln Tyr Gln Cys Gln Arg Cys Arg Lys Lys Val Val
 180 185 190
 30 Ala Lys Lys Lys Phe Thr Ile Asp Lys Ala Pro Tyr Val Leu Thr Ile
 195 200 205
 35 His Leu Lys Arg Phe Ser Pro Phe Asn Pro Arg Glu Lys Ile Asp Lys
 210 215 220
 40 Lys Val Asp Phe Gln Pro Met Leu Asp Leu Lys Pro Phe Ile Ser Asp
 225 230 235 240
 Ser Lys Val Ser Asn Leu Lys Tyr Ser Leu Tyr Gly Val Leu Val His
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 45 Ala Gly Trp Asn Thr Gln Ser Gly His Tyr Tyr Cys Phe Val Arg Thr
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 50 Ser Ser Gly Met Trp His Asn Leu Asp Asp Asn Gln Val Arg Gln Val
 275 280 285
 55 Arg Glu Ala Asp Val Leu Arg Gln Lys Ala Tyr Met Leu Phe Tyr Val
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 60 Arg Asp Arg Val Gly Asn Pro Thr Pro Arg Lys Asp Asn Ile Thr Ala
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 Asn Met Pro Ala Arg Arg Thr Ile Pro Glu Lys Ile Ser Gly Leu Ser
 325 330 335
 65 Asp Met Ile Gln Ser Gly Val Ile Glu Ala Lys Leu Asn Gly Ser Ser
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5 Ser Pro Tyr Gly Asp Lys Arg Leu His Gly Ile Ser Asn Gly Asn Ser
 355 360 365
 Ile Lys Thr Ser Arg Glu His Tyr Leu Lys Lys Asp Gly Lys Thr Glu
 370 375 380
 10 Ala Pro Lys Ala Ser Glu Asn Asn Gly Leu Ala Ser Thr Gln Lys Ala
 385 390 395 400
 15 Ser Ala Pro Gln Ile Asp Gly Ala Thr Leu Ser Ala Gln Ser Lys Gln
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 20 Ile Thr Ser Thr Gly His Arg Glu Val Ser Ser Ser Asp Arg Ser Ala
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 Ser Leu Thr His Val Ile Val Asn Gln Ala Val Ala Met Val Pro Ser
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 25 Gln Glu Leu Gln Pro Lys Val Asp Gly Leu Thr Asp Thr Ser Ser Leu
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 30 Gly Asn Gly Asn Ala Ile Leu Ser Glu Arg Asn Lys Gln Thr Ser Gln
 465 470 475 480
 35 His Gln Asn Pro Phe Ser Met Pro Ala Ser His Gly Lys Asp Thr Gly
 485 490 495
 40 Ala Gly Leu Ala Ala Gln Thr Phe Pro Thr Lys Asp Ala Ile Val Ser
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 Asn Gly Val Val Pro Ser Ser Arg Asp Pro Ile Ser Ser Glu Lys Val
 515 520 525
 45 Cys Gly Leu Gln Lys Ser Ile Lys Gln Asp Asp Lys Thr Val Lys Glu
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 50 Leu Pro Ile Ser Glu Asn Asn Ile Val Ser Gly Leu Glu Arg Val Asn
 545 550 555 560
 55 Ala Arg Lys Gln Thr Ser Ser Glu Val Ser Met Lys Val Ala Ala Ala
 565 570 575
 60 Asp Ser Cys Asn Ser Asn Thr Pro Lys Arg Val Asp Leu Lys Ser Lys
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15	cag cgt gag gaa cat cca ggc ggg gaa gag gat cgg gct cca cac ggt Gln Arg Glu Glu His Pro Gly Gly Glu Glu Asp Arg Ala Pro His Gly 35 40 45	144
20	gct ggt ggg cac gcc gca gcg ggt gaa ggg cgc gga cca cgc gct gga Ala Gly Gly His Ala Ala Gly Glu Gly Arg Gly Pro Arg Ala Gly 50 55 60	192
25	gag cat cca caa cat cag gga ggc gct gcc gga gct gtg gga gga ggc Glu His Pro Gln His Gln Gly Gly Ala Ala Gly Ala Val Gly Gly Gly 65 70 75 80	240
30	cga gaa ggc gga gga cgt gct cat cta ctc cga ccg cgt cgc cat cga Arg Glu Gly Gly Gly Arg Ala His Leu Leu Arg Pro Arg Arg His Arg 85 90 95	288
35	gac atc ggt gac cgc gta ggc cac acc tac tgt ctc tcc cga ctc cgg Asp Ile Gly Asp Arg Val Gly His Thr Tyr Cys Leu Ser Arg Leu Arg 100 105 110	336
40	cga atc gct cag aac gag caa cca tcc atc cat cca tgt cca tcc ctg Arg Ile Ala Gln Asn Glu Gln Pro Ser Ile His Pro Cys Pro Ser Leu 115 120 125	384
45	gcc ggg cag gtg atc atc agg tgg gaa ttc aga att ggc cgg gac aac Ala Gly Gln Val Ile Ile Arg Trp Glu Phe Arg Ile Gly Arg Asp Asn 130 135 140	432
50	aat acg ttc caa gaa aaa aag agg agg gtg ttc cgt gga agt tca gga Asn Thr Phe Gln Glu Lys Lys Arg Arg Val Phe Arg Gly Ser Ser Gly 145 150 155 160	480
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70	Ala Gly Gly His Ala Ala Ala Gly Glu Gly Arg Gly Pro Arg Ala Gly 50 55 60	

Glu His Pro Gln His Gln Gly Gly Ala Ala Gly Ala Val Gly Gly Gly
 65 70 75 80

5

Arg Glu Gly Gly Gly Arg Ala His Leu Leu Arg Pro Arg Arg His Arg
 85 90 95

10

Asp Ile Gly Asp Arg Val Gly His Thr Tyr Cys Leu Ser Arg Leu Arg
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Arg Ile Ala Gln Asn Glu Gln Pro Ser Ile His Pro Cys Pro Ser Leu
 115 120 125

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Ala Gly Gln Val Ile Ile Arg Trp Glu Phe Arg Ile Gly Arg Asp Asn
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Phe Arg Met

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agg gcc ccg gcg tcc gcc gac gag gaa agg gga agt gac ggg tcg tct 96
 Arg Ala Pro Ala Ser Ala Asp Glu Thr Arg Gly Ser Asp Gly Ser Ser
 20 25 30

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tca tct agc gat gat gat gtc acg gag gac gat cgc cgt ggt agc tgc 144
 Ser Ser Ser Asp Asp Asp Val Thr Glu Asp Asp Arg Arg Gly Ser Cys
 35 40 45

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acc gat tgc gtc agt att gca aag cac ctg gag tca gct aat aca atg 192
 Thr Asp Cys Val Ser Ile Ala Lys His Leu Glu Ser Ala Asn Thr Met
 50 55 60

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ttc tcc ttc ata tgg tgg ata att gga ttt tat tgg ata tct gct ggg 240
 Phe Ser Phe Ile Trp Trp Ile Ile Gly Phe Tyr Trp Ile Ser Ala Gly
 65 70 75 80

ggt gag gat gtt atc cgt gat gca cct cag ctt tac tgg ctt tgc ata 288
 Gly Glu Asp Val Ile Arg Asp Ala Pro Gln Leu Tyr Trp Leu Cys Ile
 85 90 95

65

gtc ttt ctg gca ttt gac gtg ttc ttt gtt gta ttc tgt gtt gct ctg 336
 Val Phe Leu Ala Phe Asp Val Phe Phe Val Val Phe Cys Val Ala Leu
 100 105 110

gct tgc atc att ggt att gct gta tgt tgc tgc cta cct tgc att ata 384
 Ala Cys Ile Ile Gly Ile Ala Val Cys Cys Cys Leu Pro Cys Ile Ile
 115 120 125

5 gct att ctc tat gcg gtt tct gat cag gaa gga gcg tca gaa gat gat 432
 Ala Ile Leu Tyr Ala Val Ser Asp Gln Glu Gly Ala Ser Glu Asp Asp
 130 135 140

10 att cgc caa att cca aga tac aaa ttt cgg aga aca gat gaa cct gaa 480
 Ile Arg Gln Ile Pro Arg Tyr Lys Phe Arg Arg Thr Asp Glu Pro Glu
 145 150 155 160

15 aaa caa act gct gat gag aca gga cct ttt ggt gga ata atg aca gag 528
 Lys Gln Thr Ala Asp Glu Thr Gly Pro Phe Gly Gly Ile Met Thr Glu
 165 170 175

20 tgt ggc acc aat caa cct att gag aaa gta ctc gca cct gaa gat gcg 576
 Cys Gly Thr Asn Gln Pro Ile Glu Lys Val Leu Ala Pro Glu Asp Ala
 180 185 190

gag tgt tgc att tgc ctt tcg gca tat gat gat ggt gca gag ctg cgt 624
 Glu Cys Cys Ile Cys Leu Ser Ala Tyr Asp Asp Gly Ala Glu Leu Arg
 195 200 205

25 gaa ctt cct tgt ggg cac cat ttc cac tgt gcc tgc att gat aaa tgg 672
 Glu Leu Pro Cys Gly His His Phe His Cys Ala Cys Ile Asp Lys Trp
 210 215 220

30 ctg cat atc aac gca aca tgc ccc ctg tgc aag ttc aat atc cgg aaa 720
 Leu His Ile Asn Ala Thr Cys Pro Leu Cys Lys Phe Asn Ile Arg Lys
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35 agt ggc agt agc agt gga agt gaa gaa gta tga 753
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55 Ser Ser Ser Asp Asp Asp Val Thr Glu Asp Asp Arg Arg Gly Ser Cys
 35 40 45

Thr Asp Cys Val Ser Ile Ala Lys His Leu Glu Ser Ala Asn Thr Met
 50 55 60

60 Phe Ser Phe Ile Trp Trp Ile Ile Gly Phe Tyr Trp Ile Ser Ala Gly
 65 70 75 80

65 Gly Glu Asp Val Ile Arg Asp Ala Pro Gln Leu Tyr Trp Leu Cys Ile
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Val Phe Leu Ala Phe Asp Val Phe Phe Val Val Phe Cys Val Ala Leu
100 105 110

5 Ala Cys Ile Ile Gly Ile Ala Val Cys Cys Cys Leu Pro Cys Ile Ile
115 120 125

10 Ala Ile Leu Tyr Ala Val Ser Asp Gln Glu Gly Ala Ser Glu Asp Asp
130 135 140

15 Ile Arg Gln Ile Pro Arg Tyr Lys Phe Arg Arg Thr Asp Glu Pro Glu
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Lys Gln Thr Ala Asp Glu Thr Gly Pro Phe Gly Gly Ile Met Thr Glu
165 170 175

20 Cys Gly Thr Asn Gln Pro Ile Glu Lys Val Leu Ala Pro Glu Asp Ala
180 185 190

25 Glu Cys Cys Ile Cys Leu Ser Ala Tyr Asp Asp Gly Ala Glu Leu Arg
195 200 205

30 Glu Leu Pro Cys Gly His His Phe His Cys Ala Cys Ile Asp Lys Trp
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35 Leu His Ile Asn Ala Thr Cys Pro Leu Cys Lys Phe Asn Ile Arg Lys
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Ser Gly Ser Ser Ser Gly Ser Glu Glu Val
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Lys Asp Ala Ala Ala Ala Ala Ser Ser Ser Ser Gly Lys Lys Val Pro
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60 ctg ttc agc ttg ttc cgg tac gcc gac cgc ctc gac gtg ctg ctg atg 144
Leu Phe Ser Leu Phe Arg Tyr Ala Asp Arg Leu Asp Val Leu Leu Met
35 40 45

65 gtt gtc ggc acg gtg ggc gcg ctc ggc aac ggc atc tcg cag ccc ctc 192
Val Val Gly Thr Val Gly Ala Leu Gly Asn Gly Ile Ser Gln Pro Leu
50 55 60

atg acg gtc ctc ttc ggc aac gtc atc aac tcc ttc ggc gcg aac acc 240

	Met Thr Val Leu Phe Gly Asn Val Ile Asn Ser Phe Gly Ala Asn Thr	
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	85 90 95	
10	act atg gca gga gaa agg cag tct gcc cgc atc cgt tct tta tac ctg Thr Met Ala Gly Glu Arg Gln Ser Ala Arg Ile Arg Ser Leu Tyr Leu	336
	100 105 110	
15	aaa gcc gtt ctg agg cag gat att aca ttc ttc gac aca gag atg aca Lys Ala Val Leu Arg Gln Asp Ile Thr Phe Phe Asp Thr Glu Met Thr	384
	115 120 125	
	act ggt gaa gca gtt tct aga atg tct agt gat acc ctc cta att caa Thr Gly Glu Ala Val Ser Arg Met Ser Ser Asp Thr Leu Leu Ile Gln	432
	130 135 140	
20	ggg gct ctt ggt gag aag gga ggg aag ctt gta gaa ctg tta tca agc Gly Ala Leu Gly Glu Lys Gly Gly Lys Leu Val Glu Leu Leu Ser Ser	480
	145 150 155 160	
25	ttc atc ggt ggc ttt atc ata gca ttc act aga gga tgg ctt ctc act Phe Ile Gly Gly Phe Ile Ile Ala Phe Thr Arg Gly Trp Leu Leu Thr	528
	165 170 175	
30	ctt gtc atg cta aca tcg cta ccg tta att gct att gcc agt gca gtt Leu Val Met Leu Thr Ser Leu Pro Leu Ile Ala Ile Ala Ser Ala Val	576
	180 185 190	
35	tct gca cag gcc cta act aga gtt tct agc aag aga caa aca tca tat Ser Ala Gln Ala Leu Thr Arg Val Ser Ser Lys Arg Gln Thr Ser Tyr	624
	195 200 205	
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	210 215 220	
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	225 230 235 240	
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	245 250 255	
50	ggg ttt ggc atg ggc tct gtc atg tgc gtc gta ttt ggc agc tat gga Gly Phe Gly Met Gly Ser Val Met Cys Val Val Phe Gly Ser Tyr Gly	816
	260 265 270	
55	tta gcc ttc tgg tat ggt gga aag cta atc att gag aaa ggt tac aca Leu Ala Phe Trp Tyr Gly Gly Lys Leu Ile Ile Glu Lys Gly Tyr Thr	864
	275 280 285	
	gga gga aaa atc atg act atc ttg ttt gcc gtg ttg acc ggc aat gca Gly Gly Lys Ile Met Thr Ile Leu Phe Ala Val Leu Thr Gly Asn Ala	912
	290 295 300	
60	aca cct gca gtt gct gca gtt gtg gaa ggt caa tct gca gca tac aat Thr Pro Ala Val Ala Val Val Glu Gly Gln Ser Ala Ala Tyr Asn	960
	305 310 315 320	
65	ttg ttc aaa aca att gag agg aaa cca gag ata gat tcc gat gat aac Leu Phe Lys Thr Ile Glu Arg Lys Pro Glu Ile Asp Ser Asp Asp Asn	1008
	325 330 335	
	aat ggc atg gtt tta gaa gat atg aat ggc gat att gag cta aag gat	1056

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				340					345					350			
5	gtg	tac	ttt	cgt	tac	cct	gca	aga	cca	gag	cag	ttg	ata	ttg	gat	gga	1104
	Val	Tyr	Phe	Arg	Tyr	Pro	Ala	Arg	Pro	Glu	Gln	Leu	Ile	Leu	Asp	Gly	
			355					360					365				
10	ttg	tcg	tta	caa	gta	gcg	agt	gga	aca	aca	atg	gct	ata	gtc	gga	gag	1152
	Leu	Ser	Leu	Gln	Val	Ala	Ser	Gly	Thr	Thr	Met	Ala	Ile	Val	Gly	Glu	
			370					375					380				
15	agt	gga	agc	gga	aag	tca	act	gtt	atc	agc	cta	gtc	gaa	aga	ttc	tac	1200
	Ser	Gly	Ser	Gly	Lys	Ser	Thr	Val	Ile	Ser	Leu	Val	Glu	Arg	Phe	Tyr	
						390					395					400	
	gat	cca	cag	tct	ggc	gaa	gtt	tta	ata	gat	gga	att	agc	atc	aag	aaa	1248
	Asp	Pro	Gln	Ser		Glu	Val	Leu	Ile	Asp	Gly	Ile	Ser	Ile	Lys	Lys	
					405						410					415	
20	ctg	aga	ctt	gat	tgg	ata	aga	ggg	aag	atc	ggg	ctt	gtt	agc	caa	gag	1296
	Leu	Arg	Leu	Asp	Trp	Ile	Arg	Gly	Lys	Ile	Gly	Leu	Val	Ser	Gln	Glu	
					420				425					430			
25	cct	ctg	ctt	ttt	atg	gcc	tcc	att	aaa	gat	aac	ata	ata	tat	ggg	aaa	1344
	Pro	Leu	Leu	Phe	Met	Ala	Ser	Ile	Lys	Asp	Asn	Ile	Ile	Tyr	Gly	Lys	
								440						445			
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	Lys	Asp	Ala	Thr	Leu	Glu	Glu	Ile	Lys	Arg	Ala	Ala	Glu	Leu	Ala	Asn	
			450					455				460					
35	gca	gct	aac	ttc	att	gac	aag	tta	cca	aat	ggg	tat	gat	act	tta	gtt	1440
	Ala	Ala	Asn	Phe	Ile	Asp	Lys	Leu	Pro	Asn	Gly	Tyr	Asp	Thr	Leu	Val	
						470					475					480	
	ggc	cag	cgc	ggg	act	cag	ctc	tct	gga	gga	caa	aaa	cag	aga	att	gca	1488
	Gly	Gln	Arg	Gly	Thr	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	
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40	att	gca	aga	gcc	atc	ctc	aaa	gat	cca	aaa	atc	ctt	ttg	ctc	gat	gaa	1536
	Ile	Ala	Arg	Ala	Ile	Leu	Lys	Asp	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	
				500					505					510			
45	gca	aca	agt	gca	ctt	gat	gtg	gag	tct	gag	agg	ata	gtt	cag	gag	gca	1584
	Ala	Thr	Ser	Ala	Leu	Asp	Val	Glu	Ser	Glu	Arg	Ile	Val	Gln	Glu	Ala	
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	Leu	Asn	Arg	Met	Met	Val	Glu	Arg	Thr	Thr	Leu	Val	Val	Ala	His	Arg	
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	Leu	Ser	Thr	Val	Arg	Asn	Val	Asp	Cys	Ile	Thr	Val	Val	Arg	Lys	Gly	
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	aaa	ata	gtt	gaa	caa	ggg	cct	cat	gat	gca	ctg	gtg	aag	gat	ccc	gat	1728
	Lys	Ile	Val	Glu	Gln	Gly	Pro	His	Asp	Ala	Leu	Val	Lys	Asp	Pro	Asp	
					565					570					575		
60	gga	gct	tac	tcc	cag	cta	att	agg	cta	caa	gag	act	cat	cgt	gat	gaa	1776
	Gly	Ala	Tyr	Ser	Gln	Leu	Ile	Arg	Leu	Gln	Glu	Thr	His	Arg	Asp	Glu	
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	Arg	His	Lys	Leu	Pro	Asp	Ser	Arg	Ser	Lys	Ser	Thr	Ser	Leu	Ser	Phe	
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	aga	cga	tca	aga	act	aaa	gat	ttt	ctc	agc	aag	agc	aac	agg	tat	tcc	1872

	Arg	Arg	Ser	Arg	Thr	Lys	Asp	Phe	Leu	Ser	Lys	Ser	Asn	Arg	Tyr	Ser	
	610						615					620					
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	Phe	Lys	Ser	Pro	Leu	Gly	Leu	Pro	Val	Asp	Ile	His	Glu	Asp	Gly	Met	
	625					630				635					640		
10	aca	agc	gaa	caa	caa	aag	gtt	gac	cac	tct	gac	agt	aag	gcc	att	aaa	1968
	Thr	Ser	Glu	Gln	Gln	Lys	Val	Asp	His	Ser	Asp	Ser	Lys	Ala	Ile	Lys	
					645					650					655		
15	aaa	aca	cca	ttt	gga	cgg	ctt	ttt	aat	ctt	aat	aag	cca	gaa	gtg	cca	2016
	Lys	Thr	Pro	Phe	Gly	Arg	Leu	Phe	Asn	Leu	Asn	Lys	Pro	Glu	Val	Pro	
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	Val	Leu	Leu	Leu	Gly	Ser	Ile	Ala	Ala	Ser	Val	His	Gly	Val	Ile	Leu	
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	Pro	Leu	Tyr	Gly	Ile	Ile	Met	Pro	Gly	Val	Leu	Lys	Ser	Phe	Tyr	Glu	
		690					695					700					
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	Pro	Pro	Asp	Gln	Leu	Arg	Lys	Asp	Ser	Arg	Phe	Trp	Ala	Leu	Met	Ser	
	705				710					715					720		
35	gtt	gtt	ctg	ggg	gtt	gct	tgt	ttg	att	tca	atc	cca	gca	gaa	tat	ttt	2208
	Val	Val	Leu	Gly	Val	Ala	Cys	Leu	Ile	Ser	Ile	Pro	Ala	Glu	Tyr	Phe	
				725					730						735		
40	ttg	ttt	gga	att	gct	ggg	gga	aag	ctt	ata	cag	cgt	gtc	cgt	aca	ctg	2256
	Leu	Phe	Gly	Ile	Ala	Gly	Gly	Lys	Leu	Ile	Gln	Arg	Val	Arg	Thr	Leu	
				740					745					750			
45	tca	ttt	caa	aga	att	atg	cac	caa	gag	gtt	gct	tgg	ttt	gat	aag	ccc	2304
	Ser	Phe	Gln	Arg	Ile	Met	His	Gln	Glu	Val	Ala	Trp	Phe	Asp	Lys	Pro	
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	Asn	Val	Arg	Arg	Leu	Val	Gly	Asp	Asn	Leu	Ala	Leu	Ile	Val	Gln	Ala	
	785				790					795					800		
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	Arg	Leu	Ala	Leu	Ile	Ile	Thr	Cys	Val	Ile	Pro	Leu	Val	Gly	Ala	Gln	
				820					825					830			
70	ggc	tat	gct	caa	gtt	aag	ttc	ttg	aag	ggg	ttc	agt	gaa	gaa	tct	aag	2544
	Gly	Tyr	Ala	Gln	Val	Lys	Phe	Leu	Lys	Gly	Phe	Ser	Glu	Glu	Ser	Lys	
			835					840					845				
75	gag	atg	tat	gag	gat	gca	aac	caa	gtt	gcg	gct	gac	gct	gta	ggc	agc	2592
	Glu	Met	Tyr	Glu	Asp	Ala	Asn	Gln	Val	Ala	Ala	Asp	Ala	Val	Gly	Ser	
		850					855					860					
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	Ile	Arg	Thr	Val	Ala	Ser	Phe	Cys	Ser	Glu	Lys	Arg	Val	Val	Ala	Ile	
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	900 905 910	
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	915 920 925	
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	930 935 940	
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	945 950 955 960	
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	965 970 975	
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	995 1000 1005	
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	1010 1015 1020	
	caa aag acc ata gca ctt gtt gga gaa agc ggt agt ggg aag tcc Gln Lys Thr Ile Ala Leu Val Gly Glu Ser Gly Ser Gly Lys Ser	3114
	1025 1030 1035	
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	1040 1045 1050	
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	1070 1075 1080	
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	1085 1090 1095	
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	1100 1105 1110	
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	1115 1120 1125	
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	1130 1135 1140	
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 1160 1165 1170
 10 gtt caa gat gca ttg gat cga gtc atg gtc aac agg act acc att 3564
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 65 70 75 80

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 Thr Met Ala Gly Glu Arg Gln Ser Ala Arg Ile Arg Ser Leu Tyr Leu
 100 105 110
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 Lys Ala Val Leu Arg Gln Asp Ile Thr Phe Phe Asp Thr Glu Met Thr
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 Thr Gly Glu Ala Val Ser Arg Met Ser Ser Asp Thr Leu Leu Ile Gln
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 530 535 540
 65 Leu Ser Thr Val Arg Asn Val Asp Cys Ile Thr Val Val Arg Lys Gly
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 75 Gly Ala Tyr Ser Gln Leu Ile Arg Leu Gln Glu Thr His Arg Asp Glu
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 Tyr Asn Lys Lys Cys Glu Ala Leu Arg Lys Gln Gly Ile Arg Ser Gly
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5 Ile Val Gly Gly Ile Gly Leu Ser Phe Ser Asn Leu Met Leu Tyr Leu
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 Asp Leu Asp Gly Cys Ala Phe Thr Gly Ser Val Asp Val Ser Val Asp
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 Val Thr Ala Pro Thr Arg Phe Leu Val Leu Asn Ala Ala Glu Leu Glu
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	Phe Ala Gln Arg Ile Gly Trp Asp Ala Lys Ser Gly Glu Gly His Leu	
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	Thr Asp Glu Met Gly Asp Asp Ala Glu Glu Phe Phe Lys Ser Arg Thr	
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	atc aat gcc aaa tgg gtg gag agc acc agg gcc gag gct aac ctg ggc	2592
	Ile Asn Ala Lys Trp Val Glu Ser Thr Arg Ala Glu Ala Asn Leu Gly	
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 Lys Ala Asn Ile Ala Arg Thr Val Lys Gln Ser Ile Glu Arg Val Arg
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25
  gat cac acg gat ggg ttg atg gat ttt gaa gat act gaa gtg aga tct      96
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30
  tcg gag gaa act gat gct ttg gag gaa gct aga ttg gca atc gag caa      144
  Ser Glu Glu Thr Asp Ala Leu Glu Glu Ala Arg Leu Ala Ile Glu Gln
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35
  gta gtg atc cca aaa ggt gaa agc gtg cag cta ctg ccc aga cca cca      192
  Val Val Ile Pro Lys Gly Glu Ser Val Gln Leu Leu Pro Arg Pro Pro
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  agc atc atc gct tcc cag gtg gat cta gtc gaa agt ttc aag ctc aag      240
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  65                      70                      75                      80

45
  tgg gaa tct ata ggc cag gag cca aac gca tgc ctc aga att ctt ccg      288
  Trp Glu Ser Ile Gly Gln Glu Pro Asn Ala Cys Leu Arg Ile Leu Pro
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50
  caa ttc gta ggc gtg gaa gaa ggc ggc aag tct gtc aag caa gaa gct      336
  Gln Phe Val Gly Val Glu Glu Gly Gly Lys Ser Val Lys Gln Glu Ala
                      100                      105                      110

55
  gca act gag ctc aca gat tca gac aat tca gat gac atg gac      378
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	Trp	Arg	Asn	Gly	Asp	Leu	Lys	Pro	Tyr	Ala	Val	Val	Trp	Ile	Asp	Asp	
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	Gly	Ala	Lys	Cys	Ser	Thr	Arg	Val	Asp	Leu	Asp	Asn	Ala	Asp	Asn	Pro	
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	Thr	Trp	Asp	Asp	Lys	Leu	Thr	Val	Pro	Leu	Pro	Pro	Ser	Thr	Arg	Leu	
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	Asp	Asp	Ala	Val	Leu	Tyr	Leu	Asp	Val	Val	His	Ala	Asn	Ala	Thr	Asp	
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	Gly	Val	Lys	Pro	Leu	Val	Gly	Ser	Ala	Arg	Leu	Pro	Leu	Arg	Asp	Val	
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	Leu	Ala	Asp	Thr	Gly	Ile	Gly	Ala	Arg	Ala	Ser	Arg	Ser	Leu	Arg	Leu	
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	Lys	Arg	Pro	Ser	Gly	Arg	Pro	His	Gly	Arg	Leu	Glu	Val	Arg	Val	Ala	
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aag ctc gcc tac ctc atc gaa caa caa tct gac aga gaa gaa ttc ttg      144
Lys Leu Ala Tyr Leu Ile Glu Gln Gln Ser Asp Arg Glu Glu Phe Leu
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20
aag ctc tgc aag agg att gag tac acc att agg gcc tgg tat cat ctc      192
Lys Leu Cys Lys Arg Ile Glu Tyr Thr Ile Arg Ala Trp Tyr His Leu
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25
cag ttt gat gat atg atg gaa cta ttt gct ctt ttt gac cct gtt cat      240
Gln Phe Asp Asp Met Met Glu Leu Phe Ala Leu Phe Asp Pro Val His
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ggg gcc caa aaa ctg caa cag cag aat ttc tcg act gag gaa gtc gat      288
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35
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40
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Ser Asn Phe Asn Ile Leu Ser Asp Asp Glu Val Glu Leu Ala His Ser
          115          120          125

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gat aac aaa ctt ttg tca aag tat ttt aaa gag cac cat cac gac aac      480
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55
cta ccg gag ttc tca gat aag tat gtc ata ttc cgg agg ggc att gga      528
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ctg gat cgc act agc aac ttt ttc ttt atg gag aaa gtg gac atg atc      576
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 85 90 95
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 100 105 110
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 115 120 125
 40 Gly Gln Tyr Leu Leu Asn Leu Pro Ile Lys Val Asp Glu Ala Lys Leu
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55	tgt cat gag act tat ctc ata tct aca gag ttt gag ggg cat aat gat Cys His Glu Thr Tyr Leu Ile Ser Thr Glu Phe Glu Gly His Asn Asp 145 150 155 160																	480
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65	gat gag cca aaa gtg aag gtt acc aaa tct gat acg aag gaa aaa gat Asp Glu Pro Lys Val Lys Val Thr Lys Ser Asp Thr Lys Glu Lys Asp 180 185 190																	576
70	tcc ctt gaa tgt agc tct gtc att gaa ccg tcc agt gac aga aaa ttg Ser Leu Glu Cys Ser Ser Val Ile Glu Pro Ser Ser Asp Arg Lys Leu 195 200 205																	624
75	atg caa tgc cca tat gac ttt gaa gaa att tgc aga aag ttc gtc aca Met Gln Cys Pro Tyr Asp Phe Glu Glu Ile Cys Arg Lys Phe Val Thr 210 215 220																	672
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 245 250 255

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gca att gta caa agt caa aac mga aaa gat gat gaa ctc aag gat tgg 816
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 260 265 270

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acc tcc tct tta gag gaa tgc aat gca atg tct gct caa aag cta gtt 864
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 340 345 350

30

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 355 360 365

35

gca gcc ttg cct gag gag gca ctg aga gcc tca aag tgt cag caa ata 1152
 Ala Ala Leu Pro Glu Glu Ala Leu Arg Ala Ser Lys Cys Gln Gln Ile
 370 375 380

40

aga agg cgt tca tgg 1167
 Arg Arg Arg Ser Trp
 385

45

<210> 82
 <211> 389
 <212> PRT
 <213> Oryza sativa

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<220>
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 <222> (264)..(264)
 <223> The 'Xaa' at location 264 stands for Arg.

<400> 82

55

Glu Arg Asp Ile Ser Met Val Asn Ser Tyr Pro Pro Ser Ala Phe Asp
 1 5 10 15

60

Cys Lys Gly Trp Asn Ser Ala Ser Ile Phe Ile Tyr Glu Ser Asp Glu
 20 25 30

65

Glu Ile Gln Cys Leu Leu Asp Trp Leu Arg Asp Tyr Asp Pro Arg Glu
 35 40 45

Lys Glu Leu Lys Asp Ser Ile Leu Gln Trp Gln Arg His Phe Cys His
 50 55 60

5 Gln Ser Ser Ser Pro Leu Val Asp Pro Pro Ile Ser Gly Pro Lys Gly
 65 70 75 80
 Glu Gln Leu Met Glu Leu Pro Asn Thr Lys Ala Ala Val Ile Leu Glu
 85 90 95
 10 Gln Lys Tyr Gly Leu Gln Leu Asp Gln Asp Thr Ser Asp Leu Pro Lys
 100 105 110
 15 Lys Arg Gly Lys Lys Ile Lys Leu Ser Ser Glu Asp Arg Thr Tyr Arg
 115 120 125
 20 Cys Asp Cys Leu Glu Pro Val Trp Pro Ser Arg Tyr His Cys Leu Thr
 130 135 140
 25 Cys His Glu Thr Tyr Leu Ile Ser Thr Glu Phe Glu Gly His Asn Asp
 145 150 155 160
 Gly Lys Cys Ser Lys Ile His Gln Ser Pro Asp Glu Ser Arg Glu Asn
 165 170 175
 30 Asp Glu Pro Lys Val Lys Val Thr Lys Ser Asp Thr Lys Glu Lys Asp
 180 185 190
 35 Ser Leu Glu Cys Ser Ser Val Ile Glu Pro Ser Ser Asp Arg Lys Leu
 195 200 205
 40 Met Gln Cys Pro Tyr Asp Phe Glu Glu Ile Cys Arg Lys Phe Val Thr
 210 215 220
 45 Asn Asp Ser Asn Lys Glu Thr Val Lys Gln Ile Gly Leu Asn Gly Ser
 225 230 235 240
 Asn Gly Val Pro Ser Phe Val Pro Ser Pro Ala Phe Phe Leu Glu Pro
 245 250 255
 50 Ala Ile Val Gln Ser Gln Asn Xaa Lys Asp Asp Glu Leu Lys Asp Trp
 260 265 270
 55 Thr Ser Ser Leu Glu Glu Cys Asn Ala Met Ser Ala Gln Lys Leu Val
 275 280 285
 60 Gln Glu Val Ser Lys Ser Gly Gln Ser Cys Pro Gly Asn Val Gly Asp
 290 295 300
 65 Glu Lys Val Gln Lys Ser Lys Lys Pro Thr Pro Asp Asn Thr Ser Gly
 305 310 315 320
 Glu Glu Ala His Ser Thr Thr Gly Lys Pro Thr Arg Leu Leu Ala Val
 325 330 335

Asn Gly Gly Leu Val Pro Glu Ser Ser Leu Arg Pro Leu Ile Gly Arg
 340 345 350
 5

Asn Ser His Ile Leu Lys Gln Gln Lys Ile Asn Leu Leu Asp Ile Glu
 355 360 365
 10

Ala Ala Leu Pro Glu Glu Ala Leu Arg Ala Ser Lys Cys Gln Gln Ile
 370 375 380
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Arg Arg Arg Ser Trp
 385

<210> 83
 <211> 728
 <212> DNA
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<220>
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 <222> (1)..(726)

<400> 83
 30 gtt gaa gct cag aag aaa att gaa gct gca att cgg cag aaa ggt att 48
 Val Glu Ala Gln Lys Lys Ile Glu Ala Ala Ile Arg Gln Lys Gly Ile
 1 5 10 15

35 gat gaa aac tgg gag gct gcc ttg gag cac aac cct gaa gca ttt gct 96
 Asp Glu Asn Trp Glu Ala Ala Leu Glu His Asn Pro Glu Ala Phe Ala
 20 25 30

40 cga gtg gtt atg ctg tat gtg gac atg gaa gtc aat ggt gta cct ttg 144
 Arg Val Val Met Leu Tyr Val Asp Met Glu Val Asn Gly Val Pro Leu
 35 40 45

aag gcc ttt gtt gac agt gga gca caa tca act atc ata tca aaa agc 192
 Lys Ala Phe Val Asp Ser Gly Ala Gln Ser Thr Ile Ile Ser Lys Ser
 50 55 60

45 tgt gcc gaa cgt tgc ggg ttg ctt agg ctg ctt gat cag cga tat aga 240
 Cys Ala Glu Arg Cys Gly Leu Leu Arg Leu Leu Asp Gln Arg Tyr Arg
 65 70 75 80

50 ggt gtt gct att ggc gtt ggt caa tca gag att ctt ggt aga ata cat 288
 Gly Val Ala Ile Gly Val Gly Gln Ser Glu Ile Leu Gly Arg Ile His
 85 90 95

55 gta gcc cca ata aag att ggc cat gtc ttc tat cct tgt tca ttc aca 336
 Val Ala Pro Ile Lys Ile Gly His Val Phe Tyr Pro Cys Ser Phe Thr
 100 105 110

60 gta ttg gat gct ccc aat atg gaa ttt ctt ttt ggg ctt gat atg ctg 384
 Val Leu Asp Ala Pro Asn Met Glu Phe Leu Phe Gly Leu Asp Met Leu
 115 120 125

cgg aaa cat cag tgc ata att gac tta aaa gac aat gtt ctt aga gta 432
 Arg Lys His Gln Cys Ile Ile Asp Leu Lys Asp Asn Val Leu Arg Val
 130 135 140

65 gga ggt ggt gag gtt tca gtg ccc ttc tta caa gag aaa gac atc cct 480
 Gly Gly Gly Glu Val Ser Val Pro Phe Leu Gln Glu Lys Asp Ile Pro
 145 150 155 160

tca cat ata cgt gat gaa gag aaa cta tcg aag cta gca tct ctc agc 528
 Ser His Ile Arg Asp Glu Glu Lys Leu Ser Lys Leu Ala Ser Leu Ser
 165 170 175

5

caa gga gct gct gga gaa tcg tca acg gca cgg gag aag act cct gat 576
 Gln Gly Ala Ala Gly Glu Ser Ser Thr Ala Arg Glu Lys Thr Pro Asp
 180 185 190

10

gcg cca cca cga gct cct act aca ggt gct cca gct gtg aat cct ccg 624
 Ala Pro Pro Arg Ala Pro Thr Thr Gly Ala Pro Ala Val Asn Pro Pro
 195 200 205

15

caa cca cag gga gga gga gat ttc gaa gca aaa gtc acg aaa ctg gtg 672
 Gln Pro Gln Gly Gly Gly Asp Phe Glu Ala Lys Val Thr Lys Leu Val
 210 215 220

20

gaa ctt gga ttc gac cgg gca tcc gta atc caa gct ctc aag ttg ttc 720
 Glu Leu Gly Phe Asp Arg Ala Ser Val Ile Gln Ala Leu Lys Leu Phe
 225 230 235 240

aac ggg aa 728
 Asn Gly

25

<210> 84
 <211> 242
 <212> PRT

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<213> Oryza sativa
 <400> 84

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Val Glu Ala Gln Lys Lys Ile Glu Ala Ala Ile Arg Gln Lys Gly Ile
 1 5 10 15

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Asp Glu Asn Trp Glu Ala Ala Leu Glu His Asn Pro Glu Ala Phe Ala
 20 25 30

Arg Val Val Met Leu Tyr Val Asp Met Glu Val Asn Gly Val Pro Leu
 35 40 45

45

Lys Ala Phe Val Asp Ser Gly Ala Gln Ser Thr Ile Ile Ser Lys Ser
 50 55 60

50

Cys Ala Glu Arg Cys Gly Leu Leu Arg Leu Leu Asp Gln Arg Tyr Arg
 65 70 75 80

55

Gly Val Ala Ile Gly Val Gly Gln Ser Glu Ile Leu Gly Arg Ile His
 85 90 95

60

Val Ala Pro Ile Lys Ile Gly His Val Phe Tyr Pro Cys Ser Phe Thr
 100 105 110

Val Leu Asp Ala Pro Asn Met Glu Phe Leu Phe Gly Leu Asp Met Leu
 115 120 125

65

Arg Lys His Gln Cys Ile Ile Asp Leu Lys Asp Asn Val Leu Arg Val
 130 135 140

Gly Gly Gly Glu Val Ser Val Pro Phe Leu Gln Glu Lys Asp Ile Pro
 145 150 155 160

5 Ser His Ile Arg Asp Glu Glu Lys Leu Ser Lys Leu Ala Ser Leu Ser
 165 170 175

10 Gln Gly Ala Ala Gly Glu Ser Ser Thr Ala Arg Glu Lys Thr Pro Asp
 180 185 190

15 Ala Pro Pro Arg Ala Pro Thr Thr Gly Ala Pro Ala Val Asn Pro Pro
 195 200 205

20 Gln Pro Gln Gly Gly Gly Asp Phe Glu Ala Lys Val Thr Lys Leu Val
 210 215 220

Glu Leu Gly Phe Asp Arg Ala Ser Val Ile Gln Ala Leu Lys Leu Phe
 225 230 235 240

25 Asn Gly

30 <210> 85
 <211> 760
 <212> DNA
 <213> Oryza sativa

35 <220>
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 <222> (1)..(759)

40 <400> 85
 gaa tct gga atc ttc agg caa att ctt aga ggc aaa ctt gat ttg gaa 48
 Glu Ser Gly Ile Phe Arg Gln Ile Leu Arg Gly Lys Leu Asp Leu Glu
 1 5 10 15

45 tct gat ccg tgg cct agt ata tct gat agt gct aaa gat cta gtc cgt 96
 Ser Asp Pro Trp Pro Ser Ile Ser Asp Ser Ala Lys Asp Leu Val Arg
 20 25 30

50 aat atg ctt atc cgt gat cct aca aag aga ttt act gct cac gag gtt 144
 Asn Met Leu Ile Arg Asp Pro Thr Lys Arg Phe Thr Ala His Glu Val
 35 40 45

55 ctc tgt cat cca tgg att gtt gat gat gct gtg gca cct gat aag cct 192
 Leu Cys His Pro Trp Ile Val Asp Asp Ala Val Ala Pro Asp Lys Pro
 50 55 60

60 att gat tct gct gtt ttg tca agg ctg aaa cac ttt tct gca atg aac 240
 Ile Asp Ser Ala Val Leu Ser Arg Leu Lys His Phe Ser Ala Met Asn
 65 70 75 80

aag ctc aag aag atg gct ttg agg gtt att gct gaa agc cta tct gaa 288
 Lys Leu Lys Lys Met Ala Leu Arg Val Ile Ala Glu Ser Leu Ser Glu
 85 90 95

65 gaa gag atc gga ggt ttg aag gaa ttg ttt aaa atg atc gat act gac 336
 Glu Glu Ile Gly Gly Leu Lys Glu Leu Phe Lys Met Ile Asp Thr Asp
 100 105 110

	aat agt ggg acg ata act tat gat gaa ctg aag aat ggc ctg aaa agg	384
	Asn Ser Gly Thr Ile Thr Tyr Asp Glu Leu Lys Asn Gly Leu Lys Arg	
	115 120 125	
5	gtg ggc tca gat cta atg gaa cca gaa atc cag gct tta atg gat gcc	432
	Val Gly Ser Asp Leu Met Glu Pro Glu Ile Gln Ala Leu Met Asp Ala	
	130 135 140	
10	gct gat att gac aac agt gga acc atc gac tat ggt gaa ttc tta gca	480
	Ala Asp Ile Asp Asn Ser Gly Thr Ile Asp Tyr Gly Glu Phe Leu Ala	
	145 150 155 160	
15	gct act ttg cac atg aat aaa ctg gag agg gag gaa aac ttg gtg tca	528
	Ala Thr Leu His Met Asn Lys Leu Glu Arg Glu Glu Asn Leu Val Ser	
	165 170 175	
20	gca ttc acg ttc ttt gat aag gat gga agt ggc ttc ata acc att gat	576
	Ala Phe Thr Phe Phe Asp Lys Asp Gly Ser Gly Phe Ile Thr Ile Asp	
	180 185 190	
25	gag ctc tcg caa gcc tgc gaa cag ttt ggc ctt tct gat gtt cat ctt	624
	Glu Leu Ser Gln Ala Cys Glu Gln Phe Gly Leu Ser Asp Val His Leu	
	195 200 205	
30	gag gat atg atc aaa gat gtg gat caa aat aat gat gga caa att gat	672
	Glu Asp Met Ile Lys Asp Val Asp Gln Asn Asn Asp Gly Gln Ile Asp	
	210 215 220	
35	tac agc gag ttt gcc gcg atg atg aga aag ggc aat gct ggt gga gcc	720
	Tyr Ser Glu Phe Ala Ala Met Met Arg Lys Gly Asn Ala Gly Gly Ala	
	225 230 235 240	
40	aat gct ggt gga gtc act tct act ggt gga aca gga agg a	760
	Asn Ala Gly Gly Val Thr Ser Thr Gly Gly Thr Gly Arg	
	245 250	
	<210> 86	
	<211> 253	
	<212> PRT	
	<213> Oryza sativa	
	<400> 86	
45	Glu Ser Gly Ile Phe Arg Gln Ile Leu Arg Gly Lys Leu Asp Leu Glu	
	1 5 10 15	
50	Ser Asp Pro Trp Pro Ser Ile Ser Asp Ser Ala Lys Asp Leu Val Arg	
	20 25 30	
55	Asn Met Leu Ile Arg Asp Pro Thr Lys Arg Phe Thr Ala His Glu Val	
	35 40 45	
60	Leu Cys His Pro Trp Ile Val Asp Asp Ala Val Ala Pro Asp Lys Pro	
	50 55 60	
65	Ile Asp Ser Ala Val Leu Ser Arg Leu Lys His Phe Ser Ala Met Asn	
	65 70 75 80	
70	Lys Leu Lys Lys Met Ala Leu Arg Val Ile Ala Glu Ser Leu Ser Glu	
	85 90 95	

Glu Glu Ile Gly Gly Leu Lys Glu Leu Phe Lys Met Ile Asp Thr Asp
 100 105 110

5 Asn Ser Gly Thr Ile Thr Tyr Asp Glu Leu Lys Asn Gly Leu Lys Arg
 115 120 125

10 Val Gly Ser Asp Leu Met Glu Pro Glu Ile Gln Ala Leu Met Asp Ala
 130 135 140

15 Ala Asp Ile Asp Asn Ser Gly Thr Ile Asp Tyr Gly Glu Phe Leu Ala
 145 150 155 160

Ala Thr Leu His Met Asn Lys Leu Glu Arg Glu Glu Asn Leu Val Ser
 165 170 175

20 Ala Phe Thr Phe Phe Asp Lys Asp Gly Ser Gly Phe Ile Thr Ile Asp
 180 185 190

25 Glu Leu Ser Gln Ala Cys Glu Gln Phe Gly Leu Ser Asp Val His Leu
 195 200 205

30 Glu Asp Met Ile Lys Asp Val Asp Gln Asn Asn Asp Gly Gln Ile Asp
 210 215 220

35 Tyr Ser Glu Phe Ala Ala Met Met Arg Lys Gly Asn Ala Gly Gly Ala
 225 230 235 240

Asn Ala Gly Gly Val Thr Ser Thr Gly Gly Thr Gly Arg
 245 250

40 <210> 87
 <211> 567
 <212> DNA
 <213> Oryza sativa

45 <220>
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 <222> (1)..(567)

50 <400> 87
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 Val Ser Phe Pro Tyr Ser Pro Arg Pro Ala Ala Leu Ala Ala Gly Ala
 1 5 10 15

55 cgg gcc tcg cgg gtt agc ccc gtc gtg gtc gcc gcc ggc ggc ggg cac 96
 Arg Ala Ser Arg Val Ser Pro Val Val Val Ala Ala Gly Gly Gly His
 20 25 30

60 cag cgg ctt atg ggg tcg ttg act aac acc cag ggg ctc agg ttt gga 144
 Gln Arg Leu Met Gly Ser Leu Thr Asn Thr Gln Gly Leu Arg Phe Gly
 35 40 45

65 gtg gtt gtg gca cgg ttc aat gag att gtc acc aac ttg cta ctg cag 192
 Val Val Val Ala Arg Phe Asn Glu Ile Val Thr Asn Leu Leu Leu Gln
 50 55 60

gga gct ctt gag aca ttt gag aga tat tcc gtc aaa aaa gaa aat ata 240

Gly Ala Leu Glu Thr Phe Glu Arg Tyr Ser Val Lys Lys Glu Asn Ile
 65 70 75 80

5 aca gtt cta agt gtt cct ggc agt ttt gaa att cct gtt gcg gca caa 288
 Thr Val Leu Ser Val Pro Gly Ser Phe Glu Ile Pro Val Ala Ala Gln
 85 90 95

10 aag ctt ggg aag tct gga aag ttt gat gcc aat ttt gtg cat tgg cgc 336
 Lys Leu Gly Lys Ser Gly Lys Phe Asp Ala Asn Phe Val His Trp Arg
 100 105 110

15 tgt gca ttc aga ggt gac aca acc cac tac ggt gct gtt gca aac tct 384
 Cys Ala Phe Arg Gly Asp Thr Thr His Tyr Gly Ala Val Ala Asn Ser
 115 120 125

gct gct tca ggt gta ctg tct gct gga ttg tct gct gag atc cca tgc 432
 Ala Ala Ser Gly Val Leu Ser Ala Gly Leu Ser Ala Glu Ile Pro Cys
 130 135 140

20 ata ttt ggt gtt ctg aca tgt gat gac atg gac cag gct cta aat cgt 480
 Ile Phe Gly Val Leu Thr Cys Asp Asp Met Asp Gln Ala Leu Asn Arg
 145 150 155 160

25 gct ggt ggt aag gct gga aac aag gga gct gaa gcc gct cta act gca 528
 Ala Gly Gly Lys Ala Gly Asn Lys Gly Ala Glu Ala Ala Leu Thr Ala
 165 170 175

30 atc gag atg gcc tcg ctg ttc cag cat cac ctg gcc tga 567
 Ile Glu Met Ala Ser Leu Phe Gln His His Leu Ala
 180 185

35 <210> 88
 <211> 188
 <212> PRT
 <213> Oryza sativa
 <400> 88

40 Val Ser Phe Pro Tyr Ser Pro Arg Pro Ala Ala Leu Ala Ala Gly Ala
 1 5 10 15

45 Arg Ala Ser Arg Val Ser Pro Val Val Val Ala Ala Gly Gly Gly His
 20 25 30

50 Gln Arg Leu Met Gly Ser Leu Thr Asn Thr Gln Gly Leu Arg Phe Gly
 35 40 45

Val Val Val Ala Arg Phe Asn Glu Ile Val Thr Asn Leu Leu Leu Gln
 50 55 60

55 Gly Ala Leu Glu Thr Phe Glu Arg Tyr Ser Val Lys Lys Glu Asn Ile
 65 70 75 80

60 Thr Val Leu Ser Val Pro Gly Ser Phe Glu Ile Pro Val Ala Ala Gln
 85 90 95

65 Lys Leu Gly Lys Ser Gly Lys Phe Asp Ala Asn Phe Val His Trp Arg
 100 105 110

Cys Ala Phe Arg Gly Asp Thr Thr His Tyr Gly Ala Val Ala Asn Ser

	115	120	125	
5	Ala Ala Ser Gly Val Leu Ser Ala Gly Leu Ser Ala Glu Ile Pro Cys 130 135 140			
10	Ile Phe Gly Val Leu Thr Cys Asp Asp Met Asp Gln Ala Leu Asn Arg 145 150 155 160			
15	Ala Gly Gly Lys Ala Gly Asn Lys Gly Ala Glu Ala Ala Leu Thr Ala 165 170 175			
20	Ile Glu Met Ala Ser Leu Phe Gln His His Leu Ala 180 185			
25	<210> 89 <211> 509 <212> DNA <213> Oryza sativa			
30	<220> <221> CDS <222> (1)..(507)			
35	<400> 89 gga agg aag cct gtt gcg gcc caa cat tac aac aag ggt gat aaa gat Gly Arg Lys Pro Val Ala Ala Gln His Tyr Asn Lys Gly Asp Lys Asp 1 5 10 15	48		
40	gga aca agc act ggc agc cga tgc act tct gtt gca tgg gta ccg gag Gly Thr Ser Thr Gly Ser Arg Cys Thr Ser Val Ala Trp Val Pro Glu 20 25 30	96		
45	cgt gaa gga atc ttt gtt gtt agc cat tct gat gga aat ctg tat gtg Arg Glu Gly Ile Phe Val Val Ser His Ser Asp Gly Asn Leu Tyr Val 35 40 45	144		
50	tac gat aaa tgc aaa gat gga aac act gag tgt aca ttc cca gct ata Tyr Asp Lys Cys Lys Asp Gly Asn Thr Glu Cys Thr Phe Pro Ala Ile 50 55 60	192		
55	aag gat ccg gct cag tta atg att tca cat gca aag tcc agc aag agc Lys Asp Pro Ala Gln Leu Met Ile Ser His Ala Lys Ser Ser Lys Ser 65 70 75 80	240		
60	aac cca att gct aga tgg cat gtt tgc caa ggt tca atc aac gcc atc Asn Pro Ile Ala Arg Trp His Val Cys Gln Gly Ser Ile Asn Ala Ile 85 90 95	288		
65	tcc ttt tca cca gat gga gca tat tta gca act gtt ggg cga gat ggt Ser Phe Ser Pro Asp Gly Ala Tyr Leu Ala Thr Val Gly Arg Asp Gly 100 105 110	336		
70	tat ttg aga gtg ttt gac ttt tcg aag gag caa cta ata ttt ggt ggg Tyr Leu Arg Val Phe Asp Phe Ser Lys Glu Gln Leu Ile Phe Gly Gly 115 120 125	384		
75	aaa agt tat tat ggt gca cta ttg tgt tgc aca tgg agc tcg gat ggc Lys Ser Tyr Tyr Gly Ala Leu Leu Cys Cys Thr Trp Ser Ser Asp Gly 130 135 140	432		
80	aaa tat ctg ttg act ggt ggt gaa gat gat ctt gtg cag gta tgg agc Lys Tyr Leu Leu Thr Gly Gly Glu Asp Asp Leu Val Gln Val Trp Ser 145 150 155 160	480		

145 150 155 160
 atg gat gac aga aag ata gtc gcg tgg gg 509
 Met Asp Asp Arg Lys Ile Val Ala Trp
 5 165

 <210> 90
 <211> 169
 10 <212> PRT
 <213> Oryza sativa

 <400> 90
 15 Gly Arg Lys Pro Val Ala Ala Gln His Tyr Asn Lys Gly Asp Lys Asp
 1 5 10 15

 Gly Thr Ser Thr Gly Ser Arg Cys Thr Ser Val Ala Trp Val Pro Glu
 20 20 25 30

 Arg Glu Gly Ile Phe Val Val Ser His Ser Asp Gly Asn Leu Tyr Val
 25 35 40 45

 Tyr Asp Lys Cys Lys Asp Gly Asn Thr Glu Cys Thr Phe Pro Ala Ile
 50 55 60
 30
 Lys Asp Pro Ala Gln Leu Met Ile Ser His Ala Lys Ser Ser Lys Ser
 65 70 75 80
 35 Asn Pro Ile Ala Arg Trp His Val Cys Gln Gly Ser Ile Asn Ala Ile
 85 90 95
 40 Ser Phe Ser Pro Asp Gly Ala Tyr Leu Ala Thr Val Gly Arg Asp Gly
 100 105 110
 Tyr Leu Arg Val Phe Asp Phe Ser Lys Glu Gln Leu Ile Phe Gly Gly
 115 120 125
 45
 Lys Ser Tyr Tyr Gly Ala Leu Leu Cys Cys Thr Trp Ser Ser Asp Gly
 130 135 140
 50
 Lys Tyr Leu Leu Thr Gly Gly Glu Asp Asp Leu Val Gln Val Trp Ser
 145 150 155 160
 55 Met Asp Asp Arg Lys Ile Val Ala Trp
 165
 60 <210> 91
 <211> 714
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 65 <220>
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 <222> (1)..(714)

	<400>	91																
	atg	ctg	gtg	cag	cgc	agg	gac	ggc	gac	acg	ggg	ccg	gcc	gtc	agg	ctc		48
	Met	Leu	Val	Gln	Arg	Arg	Asp	Gly	Asp	Thr	Gly	Pro	Ala	Val	Arg	Leu		
5	1				5					10					15			
	agg	gtc	tcc	cac	ggc	gcc	tcc	ttc	cgc	gac	gtc	gcc	gtg	ccg	gcg	cac		96
	Arg	Val	Ser	His	Gly	Ala	Ser	Phe	Arg	Asp	Val	Ala	Val	Pro	Ala	His		
				20					25					30				
10	tcc	acc	ttc	ggg	gaa	ttg	aag	ggg	gtc	ctt	acc	cag	gca	act	ggc	gta		144
	Ser	Thr	Phe	Gly	Glu	Leu	Lys	Gly	Val	Leu	Thr	Gln	Ala	Thr	Gly	Val		
			35					40					45					
15	gag	cct	gaa	agg	cag	agg	ctc	ttc	ttc	cgt	ggg	aag	gag	aag	agt	gac		192
	Glu	Pro	Glu	Arg	Gln	Arg	Leu	Phe	Phe	Arg	Gly	Lys	Glu	Lys	Ser	Asp		
		50					55					60						
20	aat	gag	ttc	ctg	cat	aca	gct	ggg	gtc	aag	gat	gga	gca	aaa	ctt	ctt		240
	Asn	Glu	Phe	Leu	His	Thr	Ala	Gly	Val	Lys	Asp	Gly	Ala	Lys	Leu	Leu		
	65					70					75					80		
25	cta	ctt	gag	aag	cct	gcc	cct	gcc	aat	gta	gag	cag	agg	gcc	gag	cca		288
	Leu	Leu	Glu	Lys	Pro	Ala	Pro	Ala	Asn	Val	Glu	Gln	Arg	Ala	Glu	Pro		
					85					90					95			
30	gta	att	atg	gat	gag	agc	atg	atg	aag	gct	tgt	gag	gct	gtt	ggc	cgt		336
	Val	Ile	Met	Asp	Glu	Ser	Met	Met	Lys	Ala	Cys	Glu	Ala	Val	Gly	Arg		
				100					105					110				
35	gta	aga	gct	gaa	ggt	gac	aga	ctc	tct	gcc	aag	gta	tgt	gat	ttg	gag		384
	Val	Arg	Ala	Glu	Val	Asp	Arg	Leu	Ser	Ala	Lys	Val	Cys	Asp	Leu	Glu		
			115					120					125					
40	aag	agt	gtg	ttt	gca	ggg	aga	aag	att	gag	gat	aaa	gat	ttt	gtt	gtc		432
	Lys	Ser	Val	Phe	Ala	Gly	Arg	Lys	Ile	Glu	Asp	Lys	Asp	Phe	Val	Val		
		130					135					140						
45	ttg	acg	gag	ctt	ctt	atg	atg	gag	ctg	ctg	aaa	ctt	gat	ggc	ata	gag		480
	Leu	Thr	Glu	Leu	Leu	Met	Met	Glu	Leu	Leu	Lys	Leu	Asp	Gly	Ile	Glu		
	145					150					155					160		
50	gca	gag	gga	gaa	gca	agg	gca	caa	agg	aag	gct	gag	gta	cgc	cgt	gtc		528
	Ala	Glu	Gly	Glu	Ala	Arg	Ala	Gln	Arg	Lys	Ala	Glu	Val	Arg	Arg	Val		
					165					170					175			
55	caa	ggg	ctt	gtg	gag	acg	ttg	gat	aag	ctg	aag	gca	aga	aat	gcc	aat		576
	Gln	Gly	Leu	Val	Glu	Thr	Leu	Asp	Lys	Leu	Lys	Ala	Arg	Asn	Ala	Asn		
				180														

Met Leu Val Gln Arg Arg Asp Gly Asp Thr Gly Pro Ala Val Arg Leu
 1 5 10 15
 5 Arg Val Ser His Gly Ala Ser Phe Arg Asp Val Ala Val Pro Ala His
 20 25 30
 10 Ser Thr Phe Gly Glu Leu Lys Gly Val Leu Thr Gln Ala Thr Gly Val
 35 40 45
 15 Glu Pro Glu Arg Gln Arg Leu Phe Phe Arg Gly Lys Glu Lys Ser Asp
 50 55 60
 20 Asn Glu Phe Leu His Thr Ala Gly Val Lys Asp Gly Ala Lys Leu Leu
 65 70 75 80
 Leu Leu Glu Lys Pro Ala Pro Ala Asn Val Glu Gln Arg Ala Glu Pro
 85 90 95
 25 Val Ile Met Asp Glu Ser Met Met Lys Ala Cys Glu Ala Val Gly Arg
 100 105 110
 30 Val Arg Ala Glu Val Asp Arg Leu Ser Ala Lys Val Cys Asp Leu Glu
 115 120 125
 35 Lys Ser Val Phe Ala Gly Arg Lys Ile Glu Asp Lys Asp Phe Val Val
 130 135 140
 40 Leu Thr Glu Leu Leu Met Met Glu Leu Leu Lys Leu Asp Gly Ile Glu
 145 150 155 160
 Ala Glu Gly Glu Ala Arg Ala Gln Arg Lys Ala Glu Val Arg Arg Val
 165 170 175
 45 Gln Gly Leu Val Glu Thr Leu Asp Lys Leu Lys Ala Arg Asn Ala Asn
 180 185 190
 50 Pro Phe Ser Asp Gln Asn Lys Ser Val Ser Val Thr Thr Gln Trp Glu
 195 200 205
 55 Thr Phe Asp Asn Gly Met Gly Ser Leu Asn Ala Pro Pro Pro Arg Val
 210 215 220
 60 Ser Ser Thr Gln Ile Asn Thr Asp Trp Glu Gln Phe Asp
 225 230 235
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 <211> 411
 <212> DNA
 65 <213> Oryza sativa
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 Thr Ser Ser Gly Asp Gln Gln Met Val Thr Val Ala Glu Arg Phe Pro
 1 5 10 15

10 cgg gag gtg agc tcg gag gcg gtg ttc cgg tgc gtg cgg ctg ggg ccg 96
 Arg Glu Val Ser Ser Glu Ala Val Phe Arg Cys Val Arg Leu Gly Pro
 20 25 30

15 gtc gac cag gcc gag gcg gag gtc gcg tac cag acg gcc gtc agc atc 144
 Val Asp Gln Ala Glu Ala Glu Val Ala Tyr Gln Thr Ala Val Ser Ile
 35 40 45

20 ggc ggc cac gtg ttc aag ggc atc ctg cac gac gtc ggc ccc gaa gcc 192
 Gly Gly His Val Phe Lys Gly Ile Leu His Asp Val Gly Pro Glu Ala
 50 55 60

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 Thr Gly Asp Gly Ser Ser Pro Ser Thr Ala Ala Ala Gly Glu Ala Gly
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 Ser Gly Gly Gly Gly Asn Ile Ile Val Ser Ser Ala Val Val Met Asp
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65 Gly Gly His Val Phe Lys Gly Ile Leu His Asp Val Gly Pro Glu Ala 60
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 65 70 75 80

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	35 40 45	
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	100 105 110	
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	115 120 125	
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	130 135 140	
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	145 150 155 160	
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	Leu	Asn	Pro	Ala	Val	Leu	Glu	Ala	Asp	Ala	Asn	Arg	Ala	Leu	Ile	Leu	
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	Leu	Val	Asp	Ile	Leu	Gln	Ser	Ala	Cys	Ala	His	Gln	Gly	Ser	Phe	Leu	
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	Val	Gly	Thr	Ile	Asn	Ser	Leu	Ala	Ala	Ile	Ala	Lys	Asn	Arg	Pro	Val	
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	Glu	Val	Ala	Lys	Gly	Ala	His	Pro	Ala	Ser	Leu	Arg	Tyr	Ser	Leu	Lys	
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	Thr	Ala	Phe	Leu	Gly	Phe	Leu	Arg	Ser	Pro	Cys	Gln	Ala	Met	Ile	Glu	
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	Ser	Lys	Asp	Thr	Leu	Val	Arg	Gln	Leu	Arg	Val	Leu	Ser	Pro	Gly	Glu	
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	Ala	Thr	Glu	Gln	Ile	Ile	Arg	Gln	Val	Glu	Lys	Met	Thr	Arg	Asn	Ile	
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	Glu	Arg	Ala	Ser	Arg	Ala	Ser	Lys	Asp	Glu	Pro	Ser	Thr	Leu	Asp	Met	
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ctc cac ccc gcg gcg gcg gcg gag gag gag gac gcc gac ctc ccg ctc 96
 Leu His Pro Ala Ala Ala Ala Glu Glu Glu Asp Ala Asp Leu Pro Leu
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cct gcc ctc ttc gac aag gcg tcc cac ctc cac tcc ctc gcc tcc agc 144
 Pro Ala Leu Phe Asp Lys Ala Ser His Leu His Ser Leu Ala Ser Ser
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tcc tcc ctc gat cag gaa ggg atc cgc aag ggg gtc gac ctg ctg cgg 192
 Ser Ser Leu Asp Gln Glu Gly Ile Arg Lys Gly Val Asp Leu Leu Arg
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cgg tgc gac gag atg gtc agt aag ctc ggc ctc ttc tcc tcc aac gag 240
 Arg Cys Asp Glu Met Val Ser Lys Leu Gly Leu Phe Ser Ser Asn Glu
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acc aag gat gac gtc tcc act gcc aac ctc aaa tac cta ctc gtg ccg 288
 Thr Lys Asp Asp Val Ser Thr Ala Asn Leu Lys Tyr Leu Leu Val Pro
 85 90 95

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tac tac ctt ggg gaa atg act gaa agg gta gcg cag gaa gat cgg atc 336
 Tyr Tyr Leu Gly Glu Met Thr Glu Arg Val Ala Gln Glu Asp Arg Ile
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cca gtc ctt aag gcg tcg cag gat cat ttg aag gaa ttc att tct atc 384
 Pro Val Leu Lys Ala Ser Gln Asp His Leu Lys Glu Phe Ile Ser Ile
 115 120 125

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tgt gaa gca ctg gag ctt ata tca gag gat gag ctt gaa ttg tct agg 432
 Cys Glu Ala Leu Glu Leu Ile Ser Glu Asp Glu Leu Glu Leu Ser Arg
 130 135 140

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 Gln Lys Gln Pro Asp Thr Met Ala Asn Arg Arg Ala Gln Lys Ala Ala
 145 150 155 160

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cgg ttc aag gcg caa aag gct gca gaa aca aag ctc cta gaa atc aag 528
 Arg Phe Lys Arg Gln Lys Ala Ala Glu Thr Lys Leu Leu Glu Ile Lys
 165 170 175

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gag agg aaa gaa agg cgt agg cgg tca ttg aga gca gct gct tta tca 576
 Glu Arg Lys Glu Arg Arg Arg Arg Ser Leu Arg Ala Ala Ala Leu Ser
 180 185 190

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gct cct att gaa gct ggg gag gaa gat gct ttt gag gat gat gga gag 624
 Ala Pro Ile Glu Ala Gly Glu Glu Asp Ala Phe Glu Asp Asp Gly Glu
 195 200 205

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 Glu Glu Arg Glu Ala Trp Leu Ala Thr Ile Ser Leu Ala Leu Cys Lys
 210 215 220

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15	gcc aac cgt gca cca tat tcc aag cca gct gat cca atc act tgt gca Ala Asn Arg Ala Pro Tyr Ser Lys Pro Ala Asp Pro Ile Thr Cys Ala	275	280	285	864			
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25	cat gag cac aaa cac cag ccg ctg ata ttt ggc cct gca agt ctt gtt His Glu His Lys His Gln Pro Leu Ile Phe Gly Pro Ala Ser Leu Val	305	310	315	960			
30	ggt gga gga cta acc agt gaa aga gag aga atg gca gca caa gtt ttt Gly Gly Gly Leu Thr Ser Glu Arg Glu Arg Met Ala Ala Gln Val Phe	325	330	335	1008			
35	cag cca agt tac agg ttg cca acg atg agc ata gaa gaa gct ggc tta Gln Pro Ser Tyr Arg Leu Pro Thr Met Ser Ile Glu Glu Ala Gly Leu	340	345	350	1056			
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55	tgg aag gac gat aac cct cgt ggt gca ggc aac aag aag ctc act ccc Trp Lys Asp Asp Asn Pro Arg Gly Ala Gly Asn Lys Lys Leu Thr Pro	405	410	415	1248			
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 245 250 255
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Gly Gly Gly Leu Thr Ser Glu Arg Glu Arg Met Ala Ala Gln Val Phe
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 Ile Gln Glu Ser Asn Ser Ala Trp His Lys Asp Gly Ser Arg Ser Ala
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 Gly Leu Asp Asp Ala Val Asp Ile Val Gly Thr Gly Gly Asp Gly Ala
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 Asp Thr Val Asn Ile Ser Thr Gly Ser Thr Ile Leu Ala Ala Ala Ala
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166

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45	Leu Leu Asn Pro Ala Arg Val Pro Tyr Ala Val Ile Gly Val Tyr His 165 170 175		
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	Thr Ala Ala Glu Glu Ile Leu Gly Pro Gly Gly Thr Cys Thr Thr Leu					
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	Asp Arg Arg Gly Asp Pro Val Gly Val Ile Glu Gly Asp Glu Val Thr					
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	65 70 75 80					
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	85 90 95					
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	Pro Asn Phe Glu Ile Leu Ala Ser Leu Phe Pro Ser Ile Arg His Phe					
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55	gcg ttt gaa gaa tcc tca atc agg cca agt ata ata tca aga tat ggg					384
	Ala Phe Glu Glu Ser Ser Ile Arg Pro Ser Ile Ile Ser Arg Tyr Gly					
	115 120 125					
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	Ile His Gly Phe Pro Thr Leu Phe Leu Leu Asn Ser Thr Met Arg Val					
	130 135 140					
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	Asp Val Ser Gly Phe Asp Val Ser Met Thr Ser Glu Ala Val Leu His					
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	Ala Phe Glu Glu Ser Ser Ile Arg Pro Ser Ile Ile Ser Arg Tyr Gly 115 120 125			

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 15 Ser Val Asp Gly Ile Glu Leu Lys Lys Asp Ala Glu Gln Glu Asn Cys
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 20 Pro Phe Trp Trp Ala Arg Ser Pro Glu Lys Ile Leu Gln Gln Asp Thr
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 25 Tyr Leu Ala Leu Ala Thr Ala Phe Val Ile Leu Arg Leu Leu Tyr Leu
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 30 Thr Leu Phe Pro Asn Leu Val Gly Val His Glu Tyr Phe Phe Thr Tyr
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 35 Leu Glu Gln Ala Arg His Lys Phe Phe Arg Leu Tyr Pro Ser Lys Arg
 260 265 270
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	Ser Thr Val Ser Ser Ser Gly Val Gly Leu Thr Ser Thr Ala Val Lys	
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	Lys Gly Gly Leu Tyr Thr Leu Asp Val Ser Ser Val Tyr Lys Tyr Lys	
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	Ser Thr Leu Val Asp Val Lys Val Asp Thr Glu Ser Asn Ile Ser Thr	
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	Val Lys Leu Pro Asp Tyr Asn Ser Gly Lys Val Glu Met Gln Tyr Phe	
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	Val Val Glu Phe Ser Gly Thr Ala Gly Ala Gln Gly Leu Ala Phe Gly	
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Ile Leu Gly Val Pro Lys Thr Ala Ser Gln Asp Asp Leu Lys Lys Ala
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Tyr Arg Lys Ala Ala Ile Lys Asn His Pro Asp Lys Gly Gly Asp Pro
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Glu Lys Phe Lys Glu Leu Ala Gln Ala Tyr Glu Val Leu Ser Asp Pro
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Glu Lys Arg Glu Ile Tyr Asp Gln Tyr Gly Glu Asp Ala Leu Lys Glu
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Met Arg Cys Pro Gly Cys Gln Gly Ser Gly Met Lys Ile Thr Ile Arg
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Gln Leu Gly Pro Ser Met Ile Gln Gln Met Gln Gln Pro Cys Asn Glu
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	Gly Glu Val Val Lys Pro Asp Gln Phe Lys Ala Ile Asn Asp Glu Gly	
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35	atg cca atg tac cag agg cct ttc atg aag ggg aag ctc tac att cat	1008
	Met Pro Met Tyr Gln Arg Pro Phe Met Lys Gly Lys Leu Tyr Ile His	
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 5 Val Leu Thr His Leu Asp Asn Arg Gln Leu Leu Ile Lys Ser Asn Pro
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 25 Glu Ile Asp Glu Cys Glu Glu Thr Thr Met His Asp Val Asn Asn Ile
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20	gca Ala	atc Ile	ttc Phe	aaa Lys	gca Ala	tat Tyr	ata Ile	aca Thr	gcg Ala	tta Leu	aac Asn	gaa Glu	gac Asp	cct Pro	gag Glu	caa Gln	432
25	tac Tyr	aga Arg	gct Ala	gac Asp	gca Ala	caa Gln	aag Lys	atg Met	gaa Glu	gag Glu	tgg Trp	gct Ala	cgt Arg	tcc Ser	cag Gln	aat Asn	480
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65	Ile Asn Lys Arg Ser Val Asp Arg Asp Leu Asp Val Tyr Arg Asn Ile	225	230 235 240
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 115 120 125

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caa gag caa gtt aac agg cag gat caa tta aac cac cag ttt gct tca 528
 Gln Glu Gln Val Asn Arg Gln Asp Gln Leu Asn His Gln Phe Ala Ser
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 Lys Ala Gln Val Gly Pro Thr Pro Ala Leu Ile Lys Ala Glu Val Pro
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tgg tca gct aga aga ggc aat ctc tca gag aaa gat aga gtc ctg aaa 624
 Trp Ser Ala Arg Arg Gly Asn Leu Ser Glu Lys Asp Arg Val Leu Lys
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	Phe	Cys	Pro	Met	Tyr	Ala	Gln	Leu	Cys	Ser	Asp	Leu	Asn	Glu	Lys	Leu	
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	Ala	Pro	Arg	Leu	Arg	Phe	Met	Val	Arg	Asp	Val	Val	Asp	Leu	Arg	Ser	
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	Asn	Asn	Trp	Val	Pro	Arg	Arg	Glu	Glu	Ile	Lys	Ala	Lys	Thr	Ile	Ser	
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	Glu	Ile	His	Asp	Glu	Ala	Ile	Lys	Thr	Leu	Gly	Leu	Arg	Pro	Gly	Ala	
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 25 35 40 45

 Ser Lys Ile Gly Asp Pro Asn Phe Glu Val Arg Glu Arg Val Arg Tyr
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 Thr Arg Asp Gln Leu Leu Glu Leu Arg Glu Ile Val Asp Ile Pro Glu
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 Gln Ala Gln Pro His Asn Arg Tyr Gly Glu Thr Asp Asn Arg Asp Trp
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 130 135 140
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 Trp Ser Ala Arg Arg Gly Asn Leu Ser Glu Lys Asp Arg Val Leu Lys
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 Thr Val Lys Gly Ile Leu Asn Lys Leu Thr Pro Glu Lys Phe Asp Leu
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 25 Leu Arg Ala Glu Ile Ala Lys Leu Thr Gly Pro Asp Gln Glu Met Glu
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 35 Val His His Ile Val Gln Glu Leu Leu Gly Ser Gly Pro Asp Lys Lys
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 Gly Pro Pro Ser Arg Pro Ser Ser Leu Met Ala Ser Pro Thr His Thr
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 Ser Leu Ser Phe Glu Val Val Glu Glu Ile Leu Lys Ala Val Glu Asp
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 Ser Ser Ile Ser His Ser Pro Ile Ser Ile Pro Ser Ser Ala Leu Pro
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 Arg Arg Ser Ser Pro Cys Val Gly Leu Gly Ala Ala Ala Ser Glu
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 gca atg gac gct tcg tcg gtg gcg ctc tac ggc cag ctc aag gct gct 192
 Ala Met Asp Ala Ser Ser Val Ala Leu Tyr Gly Gln Leu Lys Ala Ala
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 Gln Pro Phe Phe Leu Leu Ala Gly Pro Asn Val Ile Glu Ser Glu Glu
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 His Val Leu Lys Met Ala Lys His Ile Lys Gly Ile Thr Thr Lys Leu
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	Pro Cys Ile Ala Arg Thr Ser Val Ala Val Gly Val Asp Gly Ile Phe	
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	35 40 45	
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 5 Gly Leu Pro Leu Val Phe Lys Ser Ser Phe Asp Lys Ala Asn Arg Thr
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 10 Ser Ser Lys Ser Phe Arg Gly Pro Gly Leu Glu Glu Gly Leu Lys Ile
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 15 Leu Glu Lys Val Lys Ala Thr Tyr Asp Ile Pro Val Val Thr Asp Val
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 20 His Glu Ser His Gln Cys Glu Ala Ala Gly Arg Val Ala Asp Ile Ile
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 180 185 190
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 245 250 255
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gta gat gtg gaa gag ctc act gtt gag gag cgc aac ctc ttg tct gtt 144
 Val Asp Val Glu Glu Leu Thr Val Glu Glu Arg Asn Leu Leu Ser Val
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 Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala Ser Trp Arg Ile Val
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tca tcc att gaa cag aag gag gag ggt cgt gcc aat gag gaa cat gtt 240
 Ser Ser Ile Glu Gln Lys Glu Glu Gly Arg Gly Asn Glu Glu His Val
 65 70 75 80

act ctg atc aag gag tac cgt ggc aag att gaa gct gag ctg agc aag 288
 Thr Leu Ile Lys Glu Tyr Arg Gly Lys Ile Glu Ala Glu Leu Ser Lys
 85 90 95

att tgc gat ggt atc ctg aag ttg ctt gac tca cac ctt gtg ccc tca 336
 Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser His Leu Val Pro Ser
 100 105 110

tct act gct gca gaa tct aag gtg ttt tac ctc aag atg aag ggt gat 384
 Ser Thr Ala Ala Glu Ser Lys Val Phe Tyr Leu Lys Met Lys Gly Asp
 115 120 125

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 Tyr His Arg Tyr Leu Ala Glu Phe Lys Thr Gly Ala Glu Arg Lys Glu
 130 135 140

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 145 150 155 160

ctg gcg gat ctt gct ccc acc cat ccc ata agg ctt gga ctg gca ctt 528
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taa 771

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Cys Asn Leu Ala Lys Gln Ala Phe Asp Glu Ala Ile Ser Glu Leu Asp
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	Pro	Leu	Ala	Leu	Gly	Asp	Val	Glu	Ile	Glu	Ile	Ile	Asp	Lys	Leu	Ile	
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	Phe	Ala	Glu	Val	Leu	Glu	Met	Met	Gly	Ala	Lys	Val	Thr	Trp	Thr	Asp	
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	Arg	Asp	Val	Ala	Ser	Trp	Arg	Val	Lys	Glu	Thr	Glu	Arg	Met	Val	Ala	
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192

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	Arg Thr Val Val Ser Ile Pro Asn Gly Pro Ser Glu Leu Ala Val Lys	
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	Pro Glu Gln Val Ser Asp Tyr Thr Leu Lys Leu Leu His Arg Arg Ile	
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 50 Glu Ala Ala Trp Gly Leu Ala Arg Tyr Ala Ala Ile Ser Gln Asp Asn
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 55 Gly Leu Val Pro Ile Val Glu Pro Glu Ile Leu Leu Asp Gly Glu His
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 Gly Ile Asp Arg Thr Phe Glu Val Ala Gln Lys Val Trp Ala Glu Thr
 225 230 235 240
 60 Phe Phe Tyr Met Ala Glu Asn Asn Val Met Phe Glu Gly Ile Leu Leu
 245 250 255
 65 Lys Pro Ser Met Val Thr Pro Gly Ala Glu Cys Lys Asp Arg Ala Thr
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	Phe	Ile	Glu	Lys	Asp	Arg	Ala	Arg	Gly	Ile	Phe	Phe	Thr	Gln	Asp	Trp	
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 Trp His Met Pro Ala Leu Thr Glu Ile Phe Gly Asp Asp Ser Val Leu
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 Gln Phe Gly Gly Gly Thr Leu Gly His Pro Trp Gly Asn Ala Pro Gly
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 Glu Gly Arg Asp Leu Ala Arg Glu Gly Asn Glu Ile Ile Arg Ser Ala
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 55 Thr Trp Thr Thr Val Trp Thr Asp Gly Leu Thr Ser Leu Asp Arg Tyr
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 Lys Gly Arg Cys Tyr His Ile Glu Pro Val Val Gly Glu Asp Asn Gln
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 65 Val Thr Asn Met Phe Thr Ser Ile Val Gly Asn Val Phe Gly Phe Lys
 115 120 125
 Ala Leu Arg Ala Leu Arg Leu Glu Asp Leu Arg Ile Pro Pro Thr Tyr

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20	Leu	Arg	Gly 195	Gly	Leu	Asp	Phe	Thr 200	Lys	Asp	Asp	Glu	Asn 205	Val	Asn	Ser
25	Gln	Pro 210	Phe	Met	Arg	Trp	Arg 215	Asp	Arg	Phe	Val	Phe 220	Cys	Ala	Glu	Ala
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	aac atc aag gtc cca ctc atc ctg ggt atc tgg gga ggc aag ggt cag Asn Ile Lys Val Pro Leu Ile Leu Gly Ile Trp Gly Gly Lys Gly Gln			480

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	Pro	Ile	Met	Met	Ser	Ala	Gly	Glu	Leu	Glu	Ser	Gly	Asn	Ala	Gly	Glu	
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	Pro	Ala	Lys	Leu	Ile	Arg	Gln	Arg	Tyr	Arg	Glu	Ala	Ala	Asp	Ile	Ile	
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	Val	Asn	Ala	Thr	Leu	Met	Asn	Ile	Ala	Asp	Asn	Pro	Thr	Asn	Val	Gln	
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	Leu	Pro	Gly	Met	Tyr	Asn	Lys	Glu	Asp	Asn	Pro	Arg	Val	Pro	Ile	Ile	
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	Ser	Asp	Thr	Gly	Val	Glu	Asn	Ile	Gly	Lys	Arg	Leu	Val	Asn	Ser	Arg	
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	Glu	Gly	Pro	Pro	Glu	Phe	Glu	Gln	Pro	Lys	Met	Thr	Ile	Glu	Lys	Leu	
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	Val	Gln	Leu	Ala	Glu	Gln	Tyr	Leu	Ser	Glu	Ala	Ala	Leu	Gly	Asp	Ala	
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85	aac	tcc	gac	gcc	atg	aag	act	ggt	tcc	ttc	tac	ggg	caa	gga	gca	cag	1296
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40	Lys Glu Leu Asp Glu Gly Lys Gln Thr Asp Gln Asp Arg Trp Lys Gly 50 55 60			
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50	Gly Phe Val Asp Ser Leu Phe Gln Ala Pro Thr Gly Asp Gly Thr His 85 90 95			
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60	Tyr Asp Phe Asp Asn Thr Met Gly Gly Phe Tyr Ile Ala Pro Ala Phe 115 120 125			
65	Met Asp Lys Leu Val Val His Ile Ser Lys Asn Phe Met Thr Leu Pro 130 135 140			
	Asn Ile Lys Val Pro Leu Ile Leu Gly Ile Trp Gly Gly Lys Gly Gln 145 150 155 160			
	Gly Lys Ser Phe Gln Cys Glu Leu Val Phe Ala Lys Met Gly Ile Asn 165 170 175			
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 Leu Gly Gly Arg Ala Ser Ser Ala Ala Leu Pro Ser Arg Pro Ser Ser
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 His Val Ala Arg Ala Phe Gly Val Asp Thr Gly Ala Ala Gly Arg Ile
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 Thr Cys Ser Leu Gln Ser Asp Ile Arg Glu Val Ala Asn Lys Cys Ala
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 40 Val Ser Gly Ala Ser Ala Glu Gly Val Pro Arg Arg Leu Thr Phe Asp
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 aag acc aag ctc atg acc cgc ctg acc tac acc ctc gac gag atc gag 528
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	Ser	Phe	Leu	Asp	Pro	Lys	Gly	Arg	Gly	Gly	Ser	Thr	Gly	Tyr	Asp	Asn	
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	Lys	Glu	Asn	Val	Lys	Asn	Ala	Ser	Ser	Ser	Thr	Gly	Asn	Ile	Thr	Leu	
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Thr Val Lys Ala Glu Gly Val Ala Lys Asn Ala Pro Pro Glu Phe Gln
 145 150 155 160

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Lys Thr Lys Leu Met Thr Arg Leu Thr Tyr Thr Leu Asp Glu Ile Glu
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Gly Pro Leu Glu Val Ser Ser Asp Gly Thr Ile Lys Phe Glu Glu Lys
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Asp Gly Ile Asp Tyr Ala Ala Val Thr Val Gln Leu Pro Gly Gly Glu
 195 200 205

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Arg Val Pro Phe Leu Phe Thr Ile Lys Asn Leu Val Ala Thr Gly Lys
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Pro Glu Ser Phe Gly Gly Pro Phe Leu Val Pro Ser Tyr Arg Gly Ser
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Ala Val Ala Leu Pro Ala Gly Gly Arg Gly Asp Glu Glu Glu Leu Ala
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Lys Glu Asn Val Lys Asn Ala Ser Ser Ser Thr Gly Asn Ile Thr Leu
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 Lys Ala Tyr Ala Ala Thr Pro Thr Asn Leu Lys Ile Ile Asp Leu Tyr
 20 25 30

25 gtg gtc ttt gca gtc gcc act gcc ctt att cag gtt gtt tac atg gga 144
 Val Val Phe Ala Val Ala Thr Ala Leu Ile Gln Val Val Tyr Met Gly
 35 40 45

30 ata gtg ggg tca ttt cct ttc aac tct ttc ctt tct ggc gtc ctc tca 192
 Ile Val Gly Ser Phe Pro Phe Asn Ser Phe Leu Ser Gly Val Leu Ser
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35 tgc ata gga act gca gtc ctc gct gtt tgc ctt cgt att caa gtt aac 240
 Cys Ile Gly Thr Ala Val Leu Ala Val Cys Leu Arg Ile Gln Val Asn
 65 70 75 80

40 aaa gat aac aag gaa ttc aag gat ctt cct cct gaa agg gcg ttt gca 288
 Lys Asp Asn Lys Glu Phe Lys Asp Leu Pro Pro Glu Arg Ala Phe Ala
 85 90 95

45 gat ttc gtt ctg tgc aat ctg gtg ctc cac ttg gtg atc atg aac ttc 336
 Asp Phe Val Leu Cys Asn Leu Val Leu His Leu Val Ile Met Asn Phe
 100 105 110

50 ctt ggt tga 345
 Leu Gly

55 <210> 128
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 <213> Oryza sativa

60 <400> 128
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65 Lys Ala Tyr Ala Ala Thr Pro Thr Asn Leu Lys Ile Ile Asp Leu Tyr
 20 25 30

70 Val Val Phe Ala Val Ala Thr Ala Leu Ile Gln Val Val Tyr Met Gly
 35 40 45

Ile Val Gly Ser Phe Pro Phe Asn Ser Phe Leu Ser Gly Val Leu Ser

	50	55	60		
5	Cys Ile Gly Thr Ala Val Leu Ala Val Cys Leu Arg Ile Gln Val Asn	65	70	75	80
10	Lys Asp Asn Lys Glu Phe Lys Asp Leu Pro Pro Glu Arg Ala Phe Ala	85	90	95	
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40	ccg gcc aag gcc acc tgg tac ggc cag ccc aac ggc gcc gga ccc gac Pro Ala Lys Ala Thr Trp Tyr Gly Gln Pro Asn Gly Ala Gly Pro Asp 35 40 45			144	
45	gac aac ggc ggt gcg tgc ggg ttc aag aac acc aac cag tac ccg ttc Asp Asn Gly Gly Ala Cys Gly Phe Lys Asn Thr Asn Gln Tyr Pro Phe 50 55 60			192	
50	atg tcc atg acc tcc tgc ggc aac gag cct ctg ttc cag gac ggc aag Met Ser Met Thr Ser Cys Gly Asn Glu Pro Leu Phe Gln Asp Gly Lys 65 70 75 80			240	
55	ggc tgt ggc gcc tgc tac cag ata cgg tgc acc aac aac ccg tcg tgc Gly Cys Gly Ala Cys Tyr Gln Ile Arg Cys Thr Asn Asn Pro Ser Cys 85 90 95			288	
60	tcc ggg cag ccc agg acg gtg atc atc acg gac atg aac tac tac ccc Ser Gly Gln Pro Arg Thr Val Ile Ile Thr Asp Met Asn Tyr Pro 100 105 110			336	
65	gtg gcc agg tac cac ttc gac ctg agc ggc acg gcg ttc ggc gcc atg Val Ala Arg Tyr His Phe Asp Leu Ser Gly Thr Ala Phe Gly Ala Met 115 120 125			384	
	gcg agg ccg ggg ctg aac gac cag ctc cgc cac gcc ggc atc atc gac Ala Arg Pro Gly Leu Asn Asp Gln Leu Arg His Ala Gly Ile Ile Asp 130 135 140			432	
	atc cag ttc agg cgc gtc ccg tgc tac cac cgc ggc ctc tac gtg aac Ile Gln Phe Arg Arg Val Pro Cys Tyr His Arg Gly Leu Tyr Val Asn			480	

	145	150	155	160	
5	ttc cac gtc gag gcc ggg tcc aac ccg gtg tac ctc gcc gtg ctg gtg Phe His Val Glu Ala Gly Ser Asn Pro Val Tyr Leu Ala Val Leu Val	165	170	175	528
10	gag ttc gcc aac aag gac ggc acg gtg gtg cag ctc gac gtc atg gag Glu Phe Ala Asn Lys Asp Gly Thr Val Val Gln Leu Asp Val Met Glu	180	185	190	576
15	tcg ctc ccc agc ggc aag ccg acg cgg gtc tgg acg ccc atg cgc cgc Ser Leu Pro Ser Gly Lys Pro Thr Arg Val Trp Thr Pro Met Arg Arg	195	200	205	624
20	tcc tgg gga tcc atc tgg cgc ctc gac gcc aac cac cgc ctc cag gcc Ser Trp Gly Ser Ile Trp Arg Leu Asp Ala Asn His Arg Leu Gln Gly	210	215	220	672
25	ccc ttm tcc ctc cgc atg gtc agc gag tcc ggc cag acc gtc atc gcc Pro Xaa Ser Leu Arg Met Val Ser Glu Ser Gly Gln Thr Val Ile Ala	225	230	235	720
30	cac cag gtc atc ccg gcc aac tgg agg gcc aac acc aac tac ggc tcc His Gln Val Ile Pro Ala Asn Trp Arg Ala Asn Thr Asn Tyr Gly Ser	245	250	255	768
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55	Pro Ala Lys Ala Thr Trp Tyr Gly Gln Pro Asn Gly Ala Gly Pro Asp	35	40	45	
60	Asp Asn Gly Gly Ala Cys Gly Phe Lys Asn Thr Asn Gln Tyr Pro Phe	50	55	60	
65	Met Ser Met Thr Ser Cys Gly Asn Glu Pro Leu Phe Gln Asp Gly Lys	65	70	75	80
70	Gly Cys Gly Ala Cys Tyr Gln Ile Arg Cys Thr Asn Asn Pro Ser Cys	85	90	95	
75	Ser Gly Gln Pro Arg Thr Val Ile Ile Thr Asp Met Asn Tyr Tyr Pro				

	100	105	110	
5	Val Ala Arg Tyr His Phe Asp Leu Ser Gly Thr Ala Phe Gly Ala Met 115 120 125			
10	Ala Arg Pro Gly Leu Asn Asp Gln Leu Arg His Ala Gly Ile Ile Asp 130 135 140			
15	Ile Gln Phe Arg Arg Val Pro Cys Tyr His Arg Gly Leu Tyr Val Asn 145 150 155 160			
20	Phe His Val Glu Ala Gly Ser Asn Pro Val Tyr Leu Ala Val Leu Val 165 170 175			
25	Glu Phe Ala Asn Lys Asp Gly Thr Val Val Gln Leu Asp Val Met Glu 180 185 190			
30	Ser Leu Pro Ser Gly Lys Pro Thr Arg Val Trp Thr Pro Met Arg Arg 195 200 205			
35	Ser Trp Gly Ser Ile Trp Arg Leu Asp Ala Asn His Arg Leu Gln Gly 210 215 220			
40	Pro Xaa Ser Leu Arg Met Val Ser Glu Ser Gly Gln Thr Val Ile Ala 225 230 235 240			
45	His Gln Val Ile Pro Ala Asn Trp Arg Ala Asn Thr Asn Tyr Gly Ser 245 250 255			
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75	ggg aac tac tac tgc ggg cag ggg cac ccg atg aag ccc cac cgc atc Gly Asn Tyr Tyr Cys Gly Gln Gly His Pro Met Lys Pro His Arg Ile 35 40 45	144		
80	cgg atg acc cac gcg ctg ctc gcc cac tac ggc ctc ctc gac cag atg Arg Met Thr His Ala Leu Leu Ala His Tyr Gly Leu Leu Asp Gln Met	192		

	50		55		60		
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10	cac gcc gac gac tac gtc gcc ttc ctc cgc tcc gtc acg ccg gag acc His Ala Asp Asp Tyr Val Ala Phe Leu Arg Ser Val Thr Pro Glu Thr 85 90 95						288
15	cag cag gac cag atc cgg gcg ctc aag cgc ttc aac gtc ggc gag gac Gln Gln Asp Gln Ile Arg Ala Leu Lys Arg Phe Asn Val Gly Glu Asp 100 105 110						336
20	tgc ccc gtc ttc gac ggc ctc tac agc ttc tgc cag acc tac gcc ggg Cys Pro Val Phe Asp Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala Gly 115 120 125						384
25	gga tcc gtc ggc ggc gcc gtc aag ctc aac cac ggc cac gac atc gcc Gly Ser Val Gly Gly Ala Val Lys Leu Asn His Gly His Asp Ile Ala 130 135 140						432
30	atc aac tgg gcc ggc ggc ctc cac cac gcc aag aag tgc gag gcc tcc Ile Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Cys Glu Ala Ser 145 150 155 160						480
35	ggc ttc tgc tac gtc aac gac atc gtc ctc gcc atc ctc gag ctc ctc Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu Leu 165 170 175						528
40	aaa tac cac cag cgt gtt ctc tat gtg gac atc gat atc cac cat ggg Lys Tyr His Gln Arg Val Leu Tyr Val Asp Ile Asp Ile His His Gly 180 185 190						576
45	gat ggt gtg gag gag gcg ttt tac acg acg gac agg gtg atg acg gtc Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Val 195 200 205						624
50	tcg ttc cac aag ttt ggg gat tat ttc ccg gga aca ggg gat atc cgt Ser Phe His Lys Phe Gly Asp Tyr Phe Pro Gly Thr Gly Asp Ile Arg 210 215 220						672
55	gac att ggg tat tca gag ggg aag tat tac tgc ctg aat gtc ccg ctg Asp Ile Gly Tyr Ser Glu Gly Lys Tyr Tyr Cys Leu Asn Val Pro Leu 225 230 235 240						720
60	gat gat ggg att gat gat gac agc tac cag tcc atc ttc aag ccg atc Asp Asp Gly Ile Asp Asp Asp Ser Tyr Gln Ser Ile Phe Lys Pro Ile 245 250 255						768
65	atc agc aaa gtc atg gag atg tat cgt cct ggt gca gtc gtg ctt cag Ile Ser Lys Val Met Glu Met Tyr Arg Pro Gly Ala Val Val Leu Gln 260 265 270						816
70	tgc ggc gct gat tcg ttg tcc ggc gat agg ttg ggc tgt ttc aat ctc Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu 275 280 285						864
75	tca ggg aaa ggt cat gca gaa tgt gta aag ttc atg agg tct ttc aat Ser Gly Lys Gly His Ala Glu Cys Val Lys Phe Met Arg Ser Phe Asn 290 295 300						912
80	gtt ccg ttg ctt ctt ctt ggt ggt ggt gga tat gcc ata aga aat gtt Val Pro Leu Leu Leu Leu Gly Gly Gly Gly Tyr Ala Ile Arg Asn Val 305 310 315 320						960
85	gca cgc tgt tgg tgc tat gag aca gga gtt gca ctt ggt cat gag ctc Ala Arg Cys Trp Cys Tyr Glu Thr Gly Val Ala Leu Gly His Glu Leu 325 330 335 340						1008

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10	tac agt ctt ttc gtt gca gca agt aac atg gag aac aga aat acc aac Tyr Ser Leu Phe Val Ala Ala Ser Asn Met Glu Asn Arg Asn Thr Asn 355 360 365	1104		
15	aag caa ttg gag gaa ata aaa tgc aac att ctg gac aat ctt tca aaa Lys Gln Leu Glu Glu Ile Lys Cys Asn Ile Leu Asp Asn Leu Ser Lys 370 375 380	1152		
20	ctt caa cat gct cct agt gtc caa ttt gaa gag cga att cct gaa aca Leu Gln His Ala Pro Ser Val Gln Phe Glu Glu Arg Ile Pro Glu Thr 385 390 395 400	1200		
25	aag tta cct gag cca gat gaa gat caa gag gat cca gat gaa agg cac Lys Leu Pro Glu Pro Asp Glu Asp Gln Glu Asp Pro Asp Glu Arg His 405 410 415	1248		
30	gac cct gac tct gat atg gta ttg gat gat cac aaa cct atg gga cac Asp Pro Asp Ser Asp Met Val Leu Asp Asp His Lys Pro Met Gly His 420 425 430	1296		
35	tca gca aga agc ctt att cgc aac atc gaa gtt aag aga gaa atc act Ser Ala Arg Ser Leu Ile Arg Asn Ile Glu Val Lys Arg Glu Ile Thr 435 440 445	1344		
40	gaa tca gag gcc aaa gat cag cat ggt aag aga ttg aca act gaa cat Glu Ser Glu Ala Lys Asp Gln His Gly Lys Arg Leu Thr Thr Glu His 450 455 460	1392		
45	aaa gga cca gaa ccg atg gca gac gat cct ggt tcc tcc aag caa gct Lys Gly Pro Glu Pro Met Ala Asp Asp Pro Gly Ser Ser Lys Gln Ala 465 470 475 480	1440		
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75	Gly Asn Tyr Tyr Cys Gly Gln Gly His Pro Met Lys Pro His Arg Ile 35 40 45			
80	Arg Met Thr His Ala Leu Leu Ala His Tyr Gly Leu Leu Asp Gln Met 50 55 60			
85	Gln Val Leu Lys Pro His Pro Ala Arg Asp Arg Asp Leu Cys Arg Phe 65 70 75 80			

5 His Ala Asp Asp Tyr Val Ala Phe Leu Arg Ser Val Thr Pro Glu Thr
 85 90 95
 Gln Gln Asp Gln Ile Arg Ala Leu Lys Arg Phe Asn Val Gly Glu Asp
 100 105 110
 10 Cys Pro Val Phe Asp Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala Gly
 115 120 125
 15 Gly Ser Val Gly Gly Ala Val Lys Leu Asn His Gly His Asp Ile Ala
 130 135 140
 20 Ile Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Cys Glu Ala Ser
 145 150 155 160
 Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu Leu
 165 170 175
 25 Lys Tyr His Gln Arg Val Leu Tyr Val Asp Ile Asp Ile His His Gly
 180 185 190
 30 Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Val
 195 200 205
 35 Ser Phe His Lys Phe Gly Asp Tyr Phe Pro Gly Thr Gly Asp Ile Arg
 210 215 220
 40 Asp Ile Gly Tyr Ser Glu Gly Lys Tyr Tyr Cys Leu Asn Val Pro Leu
 225 230 235 240
 Asp Asp Gly Ile Asp Asp Asp Ser Tyr Gln Ser Ile Phe Lys Pro Ile
 245 250 255
 45 Ile Ser Lys Val Met Glu Met Tyr Arg Pro Gly Ala Val Val Leu Gln
 260 265 270
 50 Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu
 275 280 285
 55 Ser Gly Lys Gly His Ala Glu Cys Val Lys Phe Met Arg Ser Phe Asn
 290 295 300
 60 Val Pro Leu Leu Leu Leu Gly Gly Gly Gly Tyr Ala Ile Arg Asn Val
 305 310 315 320
 Ala Arg Cys Trp Cys Tyr Glu Thr Gly Val Ala Leu Gly His Glu Leu
 325 330 335
 65 Thr Asp Lys Met Pro Pro Asn Glu Tyr Phe Glu Tyr Phe Gly Pro Glu
 340 345 350

Tyr Ser Leu Phe Val Ala Ala Ser Asn Met Glu Asn Arg Asn Thr Asn
 355 360 365
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 Lys Gln Leu Glu Glu Ile Lys Cys Asn Ile Leu Asp Asn Leu Ser Lys
 370 375 380
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 Leu Gln His Ala Pro Ser Val Gln Phe Glu Glu Arg Ile Pro Glu Thr
 385 390 395 400
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 Lys Leu Pro Glu Pro Asp Glu Asp Gln Glu Asp Pro Asp Glu Arg His
 405 410 415
 20
 Asp Pro Asp Ser Asp Met Val Leu Asp Asp His Lys Pro Met Gly His
 420 425 430
 25
 Ser Ala Arg Ser Leu Ile Arg Asn Ile Glu Val Lys Arg Glu Ile Thr
 435 440 445
 Glu Ser Glu Ala Lys Asp Gln His Gly Lys Arg Leu Thr Thr Glu His
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 Phe Gln Glu Lys Phe Glu Asp Gly Trp Glu Ser Arg Trp Val Lys Ser
 35 40 45
 gaa tgg aag aag gat gag aac atg gct ggt gaa tgg aac cac aca tct 192
 Glu Trp Lys Lys Asp Glu Asn Met Ala Gly Glu Trp Asn His Thr Ser
 50 55 60
 65 ggg aag tgg aat gga gat cct gag gac aaa ggt atc caa acc tct gag 240
 Gly Lys Trp Asn Gly Asp Pro Glu Asp Lys Gly Ile Gln Thr Ser Glu
 65 70 75 80

	gac tac agg ttc tac gct att tca gcg gag tac cca gaa ttc agc aac	288
	Asp Tyr Arg Phe Tyr Ala Ile Ser Ala Glu Tyr Pro Glu Phe Ser Asn	
	85 90 95	
5	aag gat aaa acc ctg gtg ctg cag ttc tct gta aag cat gag caa aag	336
	Lys Asp Lys Thr Leu Val Leu Gln Phe Ser Val Lys His Glu Gln Lys	
	100 105 110	
10	ctt gac tgt ggt ggt gga tat gtc aag ttg ctt ggt ggt gat gtt gac	384
	Leu Asp Cys Gly Gly Gly Tyr Val Lys Leu Leu Gly Gly Asp Val Asp	
	115 120 125	
15	cag aag aaa ttt ggt ggg gac aca ccg tac agc att atg ttt gga cca	432
	Gln Lys Lys Phe Gly Gly Asp Thr Pro Tyr Ser Ile Met Phe Gly Pro	
	130 135 140	
20	gac atc tgt ggg tac agc acc aag aag gtc cat act atc ttt act aag	480
	Asp Ile Cys Gly Tyr Ser Thr Lys Lys Val His Thr Ile Phe Thr Lys	
	145 150 155 160	
25	aat gac aag aac cat ttg atc aag aag gat gtc ccc tgc gag act gat	528
	Asn Asp Lys Asn His Leu Ile Lys Lys Asp Val Pro Cys Glu Thr Asp	
	165 170 175	
30	cag ctg tcc cat gtg tac act ttg atc atc cat cct gat gct aca tac	576
	Gln Leu Ser His Val Tyr Thr Leu Ile Ile His Pro Asp Ala Thr Tyr	
	180 185 190	
35	agc ata ctt att gac aat gtt gag aag caa tct ggc agc atc tac gag	624
	Ser Ile Leu Ile Asp Asn Val Glu Lys Gln Ser Gly Ser Ile Tyr Glu	
	195 200 205	
40	cac tgg gat att ctg cct ccg aag caa atc aag gac cca gaa gct aag	672
	His Trp Asp Ile Leu Pro Pro Lys Gln Ile Lys Asp Pro Glu Ala Lys	
	210 215 220	
45	aag cca gag gac tgg gat gac aag gag tac att cct gac cct gag gac	720
	Lys Pro Glu Asp Trp Asp Asp Lys Glu Tyr Ile Pro Asp Pro Glu Asp	
	225 230 235 240	
50	aag aag cct gag gga tac gat gat att ccc aag gaa atc cct gac cct	768
	Lys Lys Pro Glu Gly Tyr Asp Asp Ile Pro Lys Glu Ile Pro Asp Pro	
	245 250 255	
55	gat gct aag aag cct gag gct ggg gct gat gag gaa gat ggt gag tgg	816
	Asp Ala Lys Lys Pro Glu Ala Gly Ala Asp Glu Glu Asp Gly Glu Trp	
	260 265 270	
60	act gca cca acc atc cgt aac cct gag tac aag gga cca tgg aag caa	864
	Thr Ala Pro Thr Ile Arg Asn Pro Glu Tyr Lys Gly Pro Trp Lys Gln	
	275 280 285	
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	Lys Lys Ile Lys Asn Pro Asn Tyr Gln Gly Lys Trp Lys Pro Pro Met	
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	Ile Ala Thr Pro Asp Phe Gln Asp Asp Pro Tyr Ile Tyr Ala Phe Asp	
	305 310 315 320	
75	agc ctg aag tcc att gga att gag ttg tgg cag gtc aaa tca ggg act	1008
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	325 330 335	
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	Leu Phe Asp Asn Ile Leu Ile Thr Asp Asp Ala Ala Leu Lys Thr	
	340 345 350	

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 355 360 365

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10

ggt gag gac gat gat gat ttg gat gac gag gat gct gag gat gag gac 1200
 Gly Glu Asp Asp Asp Asp Leu Asp Asp Glu Asp Ala Glu Asp Glu Asp
 385 390 395 400

15

aag gcc gat gag aag gct gac tct gat gca gag gat ggc aag gat tct 1248
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 405 410 415

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Phe Gln Glu Lys Phe Glu Asp Gly Trp Glu Ser Arg Trp Val Lys Ser
 35 40 45

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Glu Trp Lys Lys Asp Glu Asn Met Ala Gly Glu Trp Asn His Thr Ser
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Gly Lys Trp Asn Gly Asp Pro Glu Asp Lys Gly Ile Gln Thr Ser Glu
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55

Asp Tyr Arg Phe Tyr Ala Ile Ser Ala Glu Tyr Pro Glu Phe Ser Asn
 85 90 95

60

Lys Asp Lys Thr Leu Val Leu Gln Phe Ser Val Lys His Glu Gln Lys
 100 105 110

65

Leu Asp Cys Gly Gly Gly Tyr Val Lys Leu Leu Gly Gly Asp Val Asp
 115 120 125

Gln Lys Lys Phe Gly Gly Asp Thr Pro Tyr Ser Ile Met Phe Gly Pro
 130 135 140

Asp Ile Cys Gly Tyr Ser Thr Lys Lys Val His Thr Ile Phe Thr Lys
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Asn Asp Lys Asn His Leu Ile Lys Lys Asp Val Pro Cys Glu Thr Asp
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 Gln Leu Ser His Val Tyr Thr Leu Ile Ile His Pro Asp Ala Thr Tyr
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 Ser Ile Leu Ile Asp Asn Val Glu Lys Gln Ser Gly Ser Ile Tyr Glu
 195 200 205
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 His Trp Asp Ile Leu Pro Pro Lys Gln Ile Lys Asp Pro Glu Ala Lys
 210 215 220
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 Lys Pro Glu Asp Trp Asp Asp Lys Glu Tyr Ile Pro Asp Pro Glu Asp
 225 230 235 240
 Lys Lys Pro Glu Gly Tyr Asp Asp Ile Pro Lys Glu Ile Pro Asp Pro
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 Asp Ala Lys Lys Pro Glu Ala Gly Ala Asp Glu Glu Asp Gly Glu Trp
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 Thr Ala Pro Thr Ile Arg Asn Pro Glu Tyr Lys Gly Pro Trp Lys Gln
 275 280 285
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 Lys Lys Ile Lys Asn Pro Asn Tyr Gln Gly Lys Trp Lys Pro Pro Met
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 Ile Ala Thr Pro Asp Phe Gln Asp Asp Pro Tyr Ile Tyr Ala Phe Asp
 305 310 315 320
 Ser Leu Lys Ser Ile Gly Ile Glu Leu Trp Gln Val Lys Ser Gly Thr
 325 330 335
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 Leu Phe Asp Asn Ile Leu Ile Thr Asp Asp Ala Ala Leu Ala Lys Thr
 340 345 350
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 Phe Ala Glu Glu Thr Trp Ala Lys His Lys Asp Ala Glu Lys Ala Ala
 355 360 365
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 Phe Asp Glu Ala Glu Lys Lys Lys Glu Glu Glu Glu Ala Ala Lys Ala
 370 375 380
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 Gly Glu Asp Asp Asp Asp Leu Asp Asp Glu Asp Ala Glu Asp Glu Asp
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 ggc gag cac aag aag gaa gac gag cac aag aag gag ggg gag cac cac 96
 Gly Glu His Lys Lys Glu Asp Glu His Lys Lys Glu Gly Glu His His
 20 20 25 30
 aag aag gac ggg gag cac aag gaa ggc gtg gtg gag aag atc aag gac 144
 Lys Lys Asp Gly Glu His Lys Glu Gly Val Val Glu Lys Ile Lys Asp
 35 40 45
 aag atc acc ggc gac cac ggc gac ggc ggc gag cac aag gag aag aag 192
 Lys Ile Thr Gly Asp His Gly Asp Gly Gly Glu His Lys Glu Lys Lys
 50 55 60
 gag aag aag aag aag aag gag aag aag cac ggc gag gag ggc tac cac 240
 Asp Lys Lys Lys Lys Lys Glu Lys Lys His Gly Glu Glu Gly Tyr His
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 cac gac ggc cac agc agc agc agc agc gac agc gac tga 279
 His Asp Gly His Ser Ser Ser Ser Ser Asp Ser Asp
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 50 20 25 30
 Lys Lys Asp Gly Glu His Lys Glu Gly Val Val Glu Lys Ile Lys Asp
 55 35 40 45
 Lys Ile Thr Gly Asp His Gly Asp Gly Gly Glu His Lys Glu Lys Lys
 60 50 55 60
 Asp Lys Lys Lys Lys Lys Glu Lys Lys His Gly Glu Glu Gly Tyr His
 65 70 75 80
 65 His Asp Gly His Ser Ser Ser Ser Ser Asp Ser Asp
 85 90

<210> 137
 <211> 3321
 <212> DNA
 <213> Oryza sativa

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<220>
 <221> CDS
 <222> (1)..(3321)

10

<400> 137
 gar arg ggt gga ggt kac gcg gag gtg gat tcg gcg gct gct gct act 48
 Glu Xaa Gly Gly Gly Xaa Ala Glu Val Asp Ser Ala Ala Ala Ala Thr
 1 5 10 15

15

ggt gct cgg gcc acg gcg gcg acg aca cca cgg agg cag tct ccg gcg 96
 Gly Ala Arg Ala Thr Ala Ala Thr Pro Arg Arg Gln Ser Pro Ala
 20 25 30

20

gga gct ggg agc ccc tcg cag cgc gac gcg cgg tgg ggt gac acg agc 144
 Gly Ala Gly Ser Pro Ser Gln Arg Asp Ala Arg Trp Gly Asp Thr Ser
 35 40 45

25

tcc tac ggt gct aga aag aag cac agg gtt ttt tgc cag ctt cca aat 192
 Ser Tyr Gly Ala Arg Lys Lys His Arg Val Phe Cys Gln Leu Pro Asn
 50 55 60

30

agt gat tgg gcc tta tgc act gta att aca acc tcc ggt gac gat tcc 240
 Ser Asp Trp Ala Leu Cys Thr Val Ile Thr Thr Ser Gly Asp Asp Ser
 65 70 75 80

35

gta cta aag ctt cct gaa gga aaa gta ctg agg ttg aaa aca gag agc 288
 Val Leu Lys Leu Pro Glu Gly Lys Val Leu Arg Leu Lys Thr Glu Ser
 85 90 95

40

ctt gaa gct gca aat cct gaa att ctt gac ggg gtg gat gat ctt atg 336
 Leu Glu Ala Ala Asn Pro Glu Ile Leu Asp Gly Val Asp Asp Leu Met
 100 105 110

45

cag cta agt tat cta agt gag cca tcc gtt ctg tac aat ttg cag tac 384
 Gln Leu Ser Tyr Leu Ser Glu Pro Ser Val Leu Tyr Asn Leu Gln Tyr
 115 120 125

50

aga tac tct caa gac ttg ata tat act aaa gca ggt cca gtt ttg gtg 432
 Arg Tyr Ser Gln Asp Leu Ile Tyr Thr Lys Ala Gly Pro Val Leu Val
 130 135 140

55

gcg gtc aat cct ttt aag aaa gtt cct cta tat ggt aat gag tac att 480
 Ala Val Asn Pro Phe Lys Lys Val Pro Leu Tyr Gly Asn Glu Tyr Ile
 145 150 155 160

60

gat gca tat aga aat aaa aca aag gat agc cca cac gtt tat gca ata 528
 Asp Ala Tyr Arg Asn Lys Thr Lys Asp Ser Pro His Val Tyr Ala Ile
 165 170 175

65

gca gat tca gcc ctc cgt gaa atg aaa aga gat gaa gtt aac cag tct 576
 Ala Asp Ser Ala Leu Arg Glu Met Lys Arg Asp Glu Val Asn Gln Ser
 180 185 190

atc atc ata agt ggt gag agt gga gca gga aag aca gaa act gca aag 624
 Ile Ile Ile Ser Gly Glu Ser Gly Ala Gly Lys Thr Glu Thr Ala Lys
 195 200 205

att gct atg cag tat ttg gct tct ctt gga ggt ggg ggt ggc ata gaa 672
 Ile Ala Met Gln Tyr Leu Ala Ser Leu Gly Gly Gly Gly Gly Ile Glu
 210 215 220

tat gag atc cta caa acc aac cca ata ctc gag gct ttt ggc aac gca 720

	Tyr	Glu	Ile	Leu	Gln	Thr	Asn	Pro	Ile	Leu	Glu	Ala	Phe	Gly	Asn	Ala	
	225					230					235					240	
5	aag	aca	cta	aga	aat	gac	aac	tca	agt	cgc	ttt	gga	aag	ctc	att	gaa	768
	Lys	Thr	Leu	Arg	Asn	Asp	Asn	Ser	Ser	Arg	Phe	Gly	Lys	Leu	Ile	Glu	
					245					250					255		
10	att	cat	ttt	agt	aca	act	gga	agg	att	tgt	ggc	gcc	atg	att	caa	aca	816
	Ile	His	Phe	Ser	Thr	Thr	Gly	Arg	Ile	Cys	Gly	Ala	Met	Ile	Gln	Thr	
					260				265					270			
15	ttt	cta	ctt	gag	aag	tca	agg	gtt	gta	caa	tgt	gca	gtt	ggc	gag	cgc	864
	Phe	Leu	Leu	Glu	Lys	Ser	Arg	Val	Val	Gln	Cys	Ala	Val	Gly	Glu	Arg	
					275			280					285				
20	tcc	tac	cat	att	ttt	tat	caa	cta	tgt	gcc	ggc	gct	cct	gcg	tcc	ctc	912
	Ser	Tyr	His	Ile	Phe	Tyr	Gln	Leu	Cys	Ala	Gly	Ala	Pro	Ala	Ser	Leu	
		290					295					300					
25	aga	gat	aag	ttg	aat	atg	aag	aaa	gcg	gat	gaa	tac	aaa	tat	ttg	aag	960
	Arg	Asp	Lys	Leu	Asn	Met	Lys	Lys	Ala	Asp	Glu	Tyr	Lys	Tyr	Leu	Lys	
		305				310					315				320		
30	cag	agt	tgc	tgc	tat	tca	att	gcc	ggc	gtg	gat	gat	gct	caa	atg	ttc	1008
	Gln	Ser	Cys	Cys	Tyr	Ser	Ile	Ala	Gly	Val	Asp	Asp	Ala	Gln	Met	Phe	
					325					330					335		
35	cgt	act	gta	acg	gaa	gct	atg	aac	atc	gtt	cat	atc	agc	aaa	gag	gac	1056
	Arg	Thr	Val	Thr	Glu	Ala	Met	Asn	Ile	Val	His	Ile	Ser	Lys	Glu	Asp	
					340				345					350			
40	caa	gat	aat	gtt	ttc	acg	atg	gtt	tct	gca	att	cta	tgg	cta	gga	gat	1104
	Gln	Asp	Asn	Val	Phe	Thr	Met	Val	Ser	Ala	Ile	Leu	Trp	Leu	Gly	Asp	
			355					360					365				
45	gtc	tct	ttc	acg	gtc	att	gac	aac	gaa	aac	cat	gtt	gag	att	gtt	gta	1152
	Val	Ser	Phe	Thr	Val	Ile	Asp	Asn	Glu	Asn	His	Val	Glu	Ile	Val	Val	
		370					375					380					
50	gat	gaa	gcg	gca	gaa	acg	gtc	gca	aga	ctt	ctt	ggc	tgc	agt	att	gaa	1200
	Asp	Glu	Ala	Ala	Glu	Thr	Val	Ala	Arg	Leu	Leu	Gly	Cys	Ser	Ile	Glu	
		385				390					395					400	
55	gat	ctc	aat	tta	gct	ttg	tcg	aag	agg	cac	atg	aaa	gtt	aat	aat	gaa	1248
	Asp	Leu	Asn	Leu	Ala	Leu	Ser	Lys	Arg	His	Met	Lys	Val	Asn	Asn	Glu	
					405					410					415		
60	aat	att	gta	cag	aaa	ctc	acc	ctt	tca	cag	gca	atc	gac	aca	aga	gat	1296
	Asn	Ile	Val	Gln	Lys	Leu	Thr	Leu	Ser	Gln	Ala	Ile	Asp	Thr	Arg	Asp	
					420				425					430			
65	gcg	ttg	gcc	aag	tca	ctc	tat	gcc	agt	ttg	ttt	gag	tgg	ctt	gtt	gaa	1344
	Ala	Leu	Ala	Lys	Ser	Leu	Tyr	Ala	Ser	Leu	Phe	Glu	Trp	Leu	Val	Glu	
					435			440					445				
70	caa	att	aac	aag	tct	ctt	tca	gtt	ggc	aag	cgt	cga	act	ggg	aga	tca	1392
	Gln	Ile	Asn	Lys	Ser	Leu	Ser	Val	Gly	Lys	Arg	Arg	Thr	Gly	Arg	Ser	
					450			455				460					
75	atc	agc	att	ctt	gat	atc	tat	ggc	ttt	gaa	tca	ttc	gat	agg	aac	agt	1440
	Ile	Ser	Ile	Leu	Asp	Ile	Tyr	Gly	Phe	Glu	Ser	Phe	Asp	Arg	Asn	Ser	
					465		470				475					480	
80	ttt	gaa	cag	ttc	tgt	att	aac	tat	gct	aat	gaa	agg	ctc	caa	caa	cat	1488
	Phe	Glu	Gln	Phe	Cys	Ile	Asn	Tyr	Ala	Asn	Glu	Arg	Leu	Gln	Gln	His	
					485					490					495		
85	ttc	aat	cgc	cat	ttg	ttt	aag	ctt	gaa	caa	gag	gaa	tac	gtt	gaa	gat	1536

	Phe	Asn	Arg	His	Leu	Phe	Lys	Leu	Glu	Gln	Glu	Glu	Tyr	Val	Glu	Asp	
				500					505					510			
5	ggc	att	gac	tgg	gca	aag	gtt	gag	ttt	gag	gac	aat	cag	aac	tgt	ttg	1584
	Gly	Ile	Asp	Trp	Ala	Lys	Val	Glu	Phe	Glu	Asp	Asn	Gln	Asn	Cys	Leu	
			515					520					525				
10	aat	ctc	ttt	gag	aaa	aag	cca	ctg	ggg	ttg	ttg	tct	ctg	cta	gat	gaa	1632
	Asn	Leu	Phe	Glu	Lys	Lys	Pro	Leu	Gly	Leu	Leu	Ser	Leu	Leu	Asp	Glu	
			530				535					540					
15	gaa	tct	acc	ttc	ccc	aat	gcc	aca	gat	ctt	act	ttt	gcg	aac	aag	ctt	1680
	Glu	Ser	Thr	Phe	Pro	Asn	Ala	Thr	Asp	Leu	Thr	Phe	Ala	Asn	Lys	Leu	
	545					550					555					560	
	aag	caa	cat	ctg	aac	aat	aat	tct	tgc	ttc	cga	gga	gaa	aga	ggc	aag	1728
	Lys	Gln	His	Leu	Asn	Asn	Ser	Cys	Phe	Arg	Gly	Glu	Arg		Gly	Lys	
					565				570						575		
20	gct	ttt	gca	gtc	cgt	cac	tat	gca	gga	gag	gtg	gct	tat	gac	acg	tca	1776
	Ala	Phe	Ala	Val	Arg	His	Tyr	Ala	Gly	Glu	Val	Ala	Tyr	Asp	Thr	Ser	
				580					585					590			
25	ggg	ttt	cta	gag	aag	aat	aga	gat	tta	ttg	cac	atg	gac	tca	att	cag	1824
	Gly	Phe	Leu	Glu	Lys	Asn	Arg	Asp	Leu	Leu	His	Met	Asp	Ser	Ile	Gln	
			595					600					605				
30	ttc	ctt	gcc	aaa	tgc	aaa	tcc	tca	cta	cca	caa	atg	ttt	gca	tcc	aaa	1872
	Phe	Leu	Ala	Lys	Cys	Lys	Ser	Ser	Leu	Pro	Gln	Met	Phe	Ala	Ser	Lys	
		610					615					620					
35	atg	ctt	tct	caa	tct	gat	aat	ccg	tta	cct	gtt	cca	tat	aga	aat	agt	1920
	Met	Leu	Ser	Gln	Ser	Asp	Asn	Pro	Leu	Pro	Val	Pro	Tyr	Arg	Asn	Ser	
	625					630					635					640	
	gct	gct	gac	tca	cag	aag	tta	agt	gtt	gcg	atg	aag	ttt	aag	gga	caa	1968
	Ala	Ala	Asp	Ser	Gln	Lys	Leu	Ser	Val	Ala	Met	Lys	Phe	Lys	Gly	Gln	
					645					650					655		
40	ttg	ttc	caa	ctt	atg	caa	aga	ctc	gaa	agt	aca	aca	cca	cac	ttt	ata	2016
	Leu	Phe	Gln	Leu	Met	Gln	Arg	Leu	Glu	Ser	Thr	Thr	Pro	His	Phe	Ile	
				660					665					670			
45	cgt	tgt	att	aag	cca	aac	aat	ttg	caa	ctc	cct	gca	att	tat	gaa	caa	2064
	Arg	Cys	Ile	Lys	Pro	Asn	Asn	Leu	Gln	Leu	Pro	Ala	Ile	Tyr	Glu	Gln	
			675					680					685				
50	gga	ctt	gtg	ctt	caa	caa	ctc	aaa	tgt	tgt	ggg	gtt	ctt	gag	gtt	gtc	2112
	Gly	Leu	Val	Leu	Gln	Gln	Leu	Lys	Cys	Cys	Gly	Val	Leu	Glu	Val	Val	
		690					695					700					
55	cga	att	tca	aga	tct	gga	tat	cca	aca	aga	atg	act	cat	cag	aaa	ttt	2160
	Arg	Ile	Ser	Arg	Ser	Gly	Tyr	Pro	Thr	Arg	Met	Thr	His	Gln	Lys	Phe	
	705					710					715					720	
	gct	cga	cgg	tat	ggc	ttt	ctt	ctt	ctt	gag	gat	gtc	gca	tct	caa	gac	2208
	Ala	Arg	Arg	Tyr	Gly	Phe	Leu	Leu	Leu	Glu	Asp	Val	Ala	Ser	Gln	Asp	
					725					730					735		
60	cca	ctt	agt	gtt	tcg	gtt	gca	att	ctt	cac	cag	ttt	aac	att	ttg	cct	2256
	Pro	Leu	Ser	Val	Ser	Val	Ala	Ile	Leu	His	Gln	Phe	Asn	Ile	Leu	Pro	
				740					745					750			
65	gag	atg	tat	caa	gtt	ggg	tac	aca	aaa	ttg	ttc	ttt	cga	act	ggc	cag	2304
	Glu	Met	Tyr	Gln	Val	Gly	Tyr	Thr	Lys	Leu	Phe	Phe	Arg	Thr	Gly	Gln	
			755					760					765				
	att	ggc	aaa	ctt	gaa	gac	act	cgg	aac	cgt	act	ctg	cat	ggg	att	tta	2352

	Ile Gly Lys Leu Glu Asp Thr Arg Asn Arg Thr Leu His Gly Ile Leu	
	770 775 780	
5	agg gtt caa agc tgt ttc aga ggg cat caa gcc cgt cgc cat gca agg Arg Val Gln Ser Cys Phe Arg Gly His Gln Ala Arg Arg His Ala Arg	2400
	785 790 795 800	
10	gaa cga ata aga gga gtt ttg gct ctt caa tca ttt att cga ggt gag Glu Arg Ile Arg Gly Val Leu Ala Leu Gln Ser Phe Ile Arg Gly Glu	2448
	805 810 815	
15	aat gca aga aaa atg tat tcg tct ctg gca agg aaa cac agg gca gcc Asn Ala Arg Lys Met Tyr Ser Ser Leu Ala Arg Lys His Arg Ala Ala	2496
	820 825 830	
20	att att tta cag aga aat cta aaa tgc tgg ctt gca aga aga tat ttc Ile Ile Leu Gln Arg Asn Leu Lys Cys Trp Leu Ala Arg Arg Tyr Phe	2544
	835 840 845	
25	gtt aac ata cgg aag gct tca gta gta ata caa tct ggc att cgt ggt Val Asn Ile Arg Lys Ala Ser Val Val Ile Gln Ser Gly Ile Arg Gly	2592
	850 855 860	
30	tgt ctt gtt cga aga tgt gct ggc aat gtt gat cta ttg aat gtg cta Cys Leu Val Arg Arg Cys Ala Gly Asn Val Asp Leu Leu Asn Val Leu	2640
	865 870 875 880	
35	aga gaa ttc gaa tca aag aag gag gca gag ggt gac caa att ttg att Arg Glu Phe Glu Ser Lys Lys Glu Ala Glu Gly Asp Gln Ile Leu Ile	2688
	885 890 895	
40	aag gca tca ttc ctg gct gag cta caa agg cga ata tta aag gcc gag Lys Ala Ser Phe Leu Ala Glu Leu Gln Arg Arg Ile Leu Lys Ala Glu	2736
	900 905 910	
45	gcg aca gtc cga gaa aag gat gaa gag aac gag atg ctt cag cag cga Ala Thr Val Arg Glu Lys Asp Glu Glu Asn Glu Met Leu Gln Gln Arg	2784
	915 920 925	
50	ctt cag caa tat gaa aac cga tgg tca gaa tac gag cag aaa atg aaa Leu Gln Gln Tyr Glu Asn Arg Trp Ser Glu Tyr Glu Gln Lys Met Lys	2832
	930 935 940	
55	gcg atg gag gaa atg tgg cag aag caa atg cgg tca tta caa tca agc Ala Met Glu Glu Met Trp Gln Lys Gln Met Arg Ser Leu Gln Ser Ser	2880
	945 950 955 960	
60	cta tcc gta gca aag aag agc ctt gct ctt gat gag acg cct agg atg Leu Ser Val Ala Lys Lys Ser Leu Ala Leu Asp Glu Thr Pro Arg Met	2928
	965 970 975	
65	tcc gac tca tcg gtc gac cag agc tgg gag agc aat ggg gtt cac att Ser Asp Ser Ser Val Asp Gln Ser Trp Glu Ser Asn Gly Val His Ile	2976
	980 985 990	
70	ggc agc gcg tcg cag ctg gtt cca cgc acc gtt gga cgg gag atg aat Gly Ser Ala Ser Gln Leu Val Pro Arg Thr Val Gly Arg Glu Met Asn	3024
	995 1000 1005	
75	gcc agc atc agc gtc atc agc cgc ttg gcc gaa gag ttc gag cag Ala Ser Ile Ser Val Ile Ser Arg Leu Ala Glu Glu Phe Glu Gln	3069
	1010 1015 1020	
80	cgc agc cag gtc ttc gct gat gat gcc aag ttc ttg gtt gag gtc Arg Ser Gln Val Phe Ala Asp Asp Ala Lys Phe Leu Val Glu Val	3114
	1025 1030 1035	
85	aag tcc gga cag gcc gat gcc agc ctg aac cct gac atg gag ctc	3159

Lys Ser Gly Gln Ala Asp Ala Ser Leu Asn Pro Asp Met Glu Leu
 1040 1045 1050

5 cgc agg ctg aag cag aac ttc gac tca tgg aag aag gac ttc ggc 3204
 Arg Arg Leu Lys Gln Asn Phe Asp Ser Trp Lys Lys Asp Phe Gly
 1055 1060 1065

10 tcg cgc ata agg gag acg aag gtg atc ctc aac aag ctg ggg agc 3249
 Ser Arg Ile Arg Glu Thr Lys Val Ile Leu Asn Lys Leu Gly Ser
 1070 1075 1080

15 ggc aac gaa tcg tcg ccc aac tcg gtg aag cga aaa tgg tgg ggg 3294
 Gly Asn Glu Ser Ser Pro Asn Ser Val Lys Arg Lys Trp Trp Gly
 1085 1090 1095

15 agg ctg aac aca tcc aag ttt tca tga 3321
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 1100 1105

20 <210> 138
 <211> 1106
 <212> PRT
 <213> Oryza sativa

25 <220>
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 <222> (2)..(2)
 <223> The 'Xaa' at location 2 stands for Arg, or Lys.

30 <220>
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 <222> (6)..(6)
 <223> The 'Xaa' at location 6 stands for Asp, or Tyr.

35 <400> 138

40 Glu Xaa Gly Gly Gly Xaa Ala Glu Val Asp Ser Ala Ala Ala Ala Thr
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Gly Ala Arg Ala Thr Ala Ala Thr Thr Pro Arg Arg Gln Ser Pro Ala
 20 25 30

45 Gly Ala Gly Ser Pro Ser Gln Arg Asp Ala Arg Trp Gly Asp Thr Ser
 35 40 45

50 Ser Tyr Gly Ala Arg Lys Lys His Arg Val Phe Cys Gln Leu Pro Asn
 50 55 60

55 Ser Asp Trp Ala Leu Cys Thr Val Ile Thr Thr Ser Gly Asp Asp Ser
 65 70 75 80

60 Val Leu Lys Leu Pro Glu Gly Lys Val Leu Arg Leu Lys Thr Glu Ser
 85 90 95

Leu Glu Ala Ala Asn Pro Glu Ile Leu Asp Gly Val Asp Asp Leu Met
 100 105 110

65 Gln Leu Ser Tyr Leu Ser Glu Pro Ser Val Leu Tyr Asn Leu Gln Tyr
 115 120 125

Arg Tyr Ser Gln Asp Leu Ile Tyr Thr Lys Ala Gly Pro Val Leu Val
 130 135 140
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 Ala Val Asn Pro Phe Lys Lys Val Pro Leu Tyr Gly Asn Glu Tyr Ile
 145 150 155 160
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 Asp Ala Tyr Arg Asn Lys Thr Lys Asp Ser Pro His Val Tyr Ala Ile
 165 170 175
 15
 Ala Asp Ser Ala Leu Arg Glu Met Lys Arg Asp Glu Val Asn Gln Ser
 180 185 190
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 Ile Ile Ile Ser Gly Glu Ser Gly Ala Gly Lys Thr Glu Thr Ala Lys
 195 200 205
 Ile Ala Met Gln Tyr Leu Ala Ser Leu Gly Gly Gly Gly Ile Glu
 210 215 220
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 Tyr Glu Ile Leu Gln Thr Asn Pro Ile Leu Glu Ala Phe Gly Asn Ala
 225 230 235 240
 30
 Lys Thr Leu Arg Asn Asp Asn Ser Ser Arg Phe Gly Lys Leu Ile Glu
 245 250 255
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 Ile His Phe Ser Thr Thr Gly Arg Ile Cys Gly Ala Met Ile Gln Thr
 260 265 270
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 Phe Leu Leu Glu Lys Ser Arg Val Val Gln Cys Ala Val Gly Glu Arg
 275 280 285
 Ser Tyr His Ile Phe Tyr Gln Leu Cys Ala Gly Ala Pro Ala Ser Leu
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 Arg Asp Lys Leu Asn Met Lys Lys Ala Asp Glu Tyr Lys Tyr Leu Lys
 305 310 315 320
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 Gln Ser Cys Cys Tyr Ser Ile Ala Gly Val Asp Asp Ala Gln Met Phe
 325 330 335
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 Arg Thr Val Thr Glu Ala Met Asn Ile Val His Ile Ser Lys Glu Asp
 340 345 350
 60
 Gln Asp Asn Val Phe Thr Met Val Ser Ala Ile Leu Trp Leu Gly Asp
 355 360 365
 Val Ser Phe Thr Val Ile Asp Asn Glu Asn His Val Glu Ile Val Val
 370 375 380
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 Asp Glu Ala Ala Glu Thr Val Ala Arg Leu Leu Gly Cys Ser Ile Glu
 385 390 395 400

Asp Leu Asn Leu Ala Leu Ser Lys Arg His Met Lys Val Asn Asn Glu
 405 410 415
 5 Asn Ile Val Gln Lys Leu Thr Leu Ser Gln Ala Ile Asp Thr Arg Asp
 420 425 430
 10 Ala Leu Ala Lys Ser Leu Tyr Ala Ser Leu Phe Glu Trp Leu Val Glu
 435 440 445
 15 Gln Ile Asn Lys Ser Leu Ser Val Gly Lys Arg Arg Thr Gly Arg Ser
 450 455 460
 20 Ile Ser Ile Leu Asp Ile Tyr Gly Phe Glu Ser Phe Asp Arg Asn Ser
 465 470 475 480
 Phe Glu Gln Phe Cys Ile Asn Tyr Ala Asn Glu Arg Leu Gln Gln His
 485 490 495
 25 Phe Asn Arg His Leu Phe Lys Leu Glu Gln Glu Glu Tyr Val Glu Asp
 500 505 510
 30 Gly Ile Asp Trp Ala Lys Val Glu Phe Glu Asp Asn Gln Asn Cys Leu
 515 520 525
 35 Asn Leu Phe Glu Lys Lys Pro Leu Gly Leu Leu Ser Leu Leu Asp Glu
 530 535 540
 40 Glu Ser Thr Phe Pro Asn Ala Thr Asp Leu Thr Phe Ala Asn Lys Leu
 545 550 555 560
 Lys Gln His Leu Asn Asn Asn Ser Cys Phe Arg Gly Glu Arg Gly Lys
 565 570 575
 45 Ala Phe Ala Val Arg His Tyr Ala Gly Glu Val Ala Tyr Asp Thr Ser
 580 585 590
 50 Gly Phe Leu Glu Lys Asn Arg Asp Leu Leu His Met Asp Ser Ile Gln
 595 600 605
 55 Phe Leu Ala Lys Cys Lys Ser Ser Leu Pro Gln Met Phe Ala Ser Lys
 610 615 620
 60 Met Leu Ser Gln Ser Asp Asn Pro Leu Pro Val Pro Tyr Arg Asn Ser
 625 630 635 640
 Ala Ala Asp Ser Gln Lys Leu Ser Val Ala Met Lys Phe Lys Gly Gln
 645 650 655
 65 Leu Phe Gln Leu Met Gln Arg Leu Glu Ser Thr Thr Pro His Phe Ile
 660 665 670

Arg Cys Ile Lys Pro Asn Asn Leu Gln Leu Pro Ala Ile Tyr Glu Gln
 675 680 685
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 Gly Leu Val Leu Gln Gln Leu Lys Cys Cys Gly Val Leu Glu Val Val
 690 695 700
 10 Arg Ile Ser Arg Ser Gly Tyr Pro Thr Arg Met Thr His Gln Lys Phe
 705 710 715 720
 15 Ala Arg Arg Tyr Gly Phe Leu Leu Leu Glu Asp Val Ala Ser Gln Asp
 725 730 735
 20 Pro Leu Ser Val Ser Val Ala Ile Leu His Gln Phe Asn Ile Leu Pro
 740 745 750
 25 Glu Met Tyr Gln Val Gly Tyr Thr Lys Leu Phe Phe Arg Thr Gly Gln
 755 760 765
 30 Ile Gly Lys Leu Glu Asp Thr Arg Asn Arg Thr Leu His Gly Ile Leu
 770 775 780
 35 Arg Val Gln Ser Cys Phe Arg Gly His Gln Ala Arg Arg His Ala Arg
 785 790 795 800
 40 Glu Arg Ile Arg Gly Val Leu Ala Leu Gln Ser Phe Ile Arg Gly Glu
 805 810 815
 45 Asn Ala Arg Lys Met Tyr Ser Ser Leu Ala Arg Lys His Arg Ala Ala
 820 825 830
 50 Ile Ile Leu Gln Arg Asn Leu Lys Cys Trp Leu Ala Arg Arg Tyr Phe
 835 840 845
 55 Val Asn Ile Arg Lys Ala Ser Val Val Ile Gln Ser Gly Ile Arg Gly
 850 855 860
 60 Cys Leu Val Arg Arg Cys Ala Gly Asn Val Asp Leu Leu Asn Val Leu
 865 870 875 880
 65 Arg Glu Phe Glu Ser Lys Lys Glu Ala Glu Gly Asp Gln Ile Leu Ile
 885 890 895
 70 Lys Ala Ser Phe Leu Ala Glu Leu Gln Arg Arg Ile Leu Lys Ala Glu
 900 905 910
 75 Ala Thr Val Arg Glu Lys Asp Glu Glu Asn Glu Met Leu Gln Gln Arg
 915 920 925
 80 Leu Gln Gln Tyr Glu Asn Arg Trp Ser Glu Tyr Glu Gln Lys Met Lys
 930 935 940

Ala Met Glu Glu Met Trp Gln Lys Gln Met Arg Ser Leu Gln Ser Ser
 945 950 955 960

5 Leu Ser Val Ala Lys Lys Ser Leu Ala Leu Asp Glu Thr Pro Arg Met
 965 970 975

10 Ser Asp Ser Ser Val Asp Gln Ser Trp Glu Ser Asn Gly Val His Ile
 980 985 990

15 Gly Ser Ala Ser Gln Leu Val Pro Arg Thr Val Gly Arg Glu Met Asn
 995 1000 1005

20 Ala Ser Ile Ser Val Ile Ser Arg Leu Ala Glu Glu Phe Glu Gln
 1010 1015 1020

Arg Ser Gln Val Phe Ala Asp Asp Ala Lys Phe Leu Val Glu Val
 1025 1030 1035

25 Lys Ser Gly Gln Ala Asp Ala Ser Leu Asn Pro Asp Met Glu Leu
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30 Arg Arg Leu Lys Gln Asn Phe Asp Ser Trp Lys Lys Asp Phe Gly
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	Ala	Pro	Leu	Ile	Leu	Glu	Leu	Gly	Gly	Tyr	Ile	Tyr	Gly	Gln	Lys	Cys	
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	Val	Phe	Pro	Glu	Trp	Ala	Arg	Arg	His	Ala	Leu	Asp	Lys	Gly	Glu	Ala	
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	Val	Asn	Phe	Leu	Lys	Gly	Ala	Val	Val	Thr	Ala	Asp	Arg	Ile	Val	Thr	
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	Val	Asn	Gly	Ile	Asp	Ile	Asn	Asp	Trp	Asn	Pro	Ser	Thr	Asp	Lys	Phe	
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	Leu	Pro	Tyr	His	Tyr	Ser	Val	Asp	Asp	Leu	Ser	Gly	Lys	Ala	Lys	Cys	
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	Pro	Leu	Ile	Gly	Phe	Ile	Gly	Arg	Leu	Asp	Tyr	Gln	Lys	Gly	Ile	Asp	
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	Pro	Ser	Arg	Phe	Glu	Pro	Cys	Gly	Leu	Asn	Gln	Leu	Tyr	Ala	Met	Gln	
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45	tgg	gca	ttc	tgc	cca	cta	acc	att	gaa	aaa	aat	gct	gtg	ggc	att	gcg	1776
	Trp	Ala	Phe	Ser	Pro	Leu	Thr	Ile	Glu	Lys	Asn	Ala	Val	Gly	Ile	Ala	
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25	Ala Ser Glu Gln Glu Ser Glu Ile Met Asp Val Lys Glu Gln Ala Gln		
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35	Tyr Ala Lys Ser Gly Gly Leu Gly Asp Val Cys Gly Ser Leu Pro Ile		
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65	Gly Asp Asn Gln Phe Arg Tyr Thr Leu Leu Cys Tyr Ala Ala Cys Glu		
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70	Ala Pro Leu Ile Leu Glu Leu Gly Gly Tyr Ile Tyr Gly Gln Lys Cys		
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25	Gly Leu Asn Glu Leu Leu Ser Ser Arg Lys Ser Val Leu Asn Gly Ile	385	390	395
30	Val Asn Gly Ile Asp Ile Asn Asp Trp Asn Pro Ser Thr Asp Lys Phe	405	410	415
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65	Val Pro Val Ser His Arg Ile Thr Ala Gly Cys Asp Ile Leu Leu Met	515	520	525
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75	Tyr Gly Thr Val Pro Val Val His Gly Thr Gly Gly Leu Arg Asp Thr	545	550	555
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	Phe Val Glu Glu Lys Asp Asp Ala Ala Asn Met Asp Asn Thr Pro Pro			
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 Pro Gly Glu Glu Pro Tyr His Phe Gln Pro Arg Leu Phe Ser Lys Ile
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 Ile Pro Glu Lys Ser Arg Tyr Gln Val Leu Ser Thr Lys Val Glu Ile
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 Arg Leu Ala Lys Ala Glu Gln Ile Thr Trp Thr Ser Leu Asp Tyr Asp
 245 250 255

 55 Lys Lys Pro Lys Ala Val Pro Gln Lys Ile Ile Pro Pro Ala Glu Ser
 260 265 270

 60 Ala Gln Arg Pro Ser Tyr Pro Ser Ser Lys Ser Lys Lys Asp Trp Asp
 275 280 285

 Lys Leu Glu Ala Glu Val Lys Lys Glu Glu Lys Glu Glu Lys Leu Glu
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 Gly Asp Ala Ala Leu Asn Lys Phe Phe Arg Asp Ile Tyr Ser Asp Ala
 305 310 315 320

Asp Glu Asp Met Arg Arg Ala Met Met Lys Ser Phe Val Glu Ser Asn
 325 330 335
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 Gly Thr Val Leu Ser Thr Asn Trp Lys Asp Val Gly Ser Lys Lys Val
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 gag aac acc gac tac ctg tgc aac atg gac ccg tac gcg gtt ctc aaa 96
 Glu Asn Thr Asp Tyr Leu Cys Asn Met Asp Pro Tyr Ala Val Leu Lys
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 tgc cgc tcg cag gag cag aag agc agc gtt gcg tca ggt aaa gga tct 144
 Cys Arg Ser Gln Glu Gln Lys Ser Ser Val Ala Ser Gly Lys Gly Ser
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 gac cct gaa tgg aac gaa acc ttt atg ttc agc gtc act cac aac gct 192
 Asp Pro Glu Trp Asn Glu Thr Phe Met Phe Ser Val Thr His Asn Ala
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 aca gag ctc atc atc aag ttg atg gac agt gac agt ggc acg gat gat 240
 Thr Glu Leu Ile Ile Lys Leu Met Asp Ser Asp Ser Gly Thr Asp Asp
 65 70 75 80
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 gat ttt gtt gga gaa gca acg att tct ttg gaa gca atc tat aca gaa 288
 Asp Phe Val Gly Glu Ala Thr Ile Ser Leu Glu Ala Ile Tyr Thr Glu
 85 90 95
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 gga agc ata ccc cca act gtt tat aat gtt gtg aaa gaa gaa gaa tac 336
 Gly Ser Ile Pro Pro Thr Val Tyr Asn Val Val Lys Glu Glu Glu Tyr
 100 105 110
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 cgt gga gaa atc aaa gtg ggc ctg acg ttc act cca gag gat gat cgc 384
 Arg Gly Glu Ile Lys Val Gly Leu Thr Phe Thr Pro Glu Asp Asp Arg
 115 120 125
 65
 gat cgg ggt tta tct gag gaa gac att ggt gga tgg aag cag tca tct 432
 Asp Arg Gly Leu Ser Glu Glu Asp Ile Gly Gly Trp Lys Gln Ser Ser
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 tga 435
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Cys Arg Ser Gln Glu Gln Lys Ser Ser Val Ala Ser Gly Lys Gly Ser
 35 40 45

Asp Pro Glu Trp Asn Glu Thr Phe Met Phe Ser Val Thr His Asn Ala
 50 55 60

Thr Glu Leu Ile Ile Lys Leu Met Asp Ser Asp Ser Gly Thr Asp Asp
 65 70 75 80

Asp Phe Val Gly Glu Ala Thr Ile Ser Leu Glu Ala Ile Tyr Thr Glu
 85 90 95

Gly Ser Ile Pro Pro Thr Val Tyr Asn Val Val Lys Glu Glu Glu Tyr
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 Ser Gly Val Gly Lys Ser Cys Leu Leu Arg Phe Ala Asp Asp Ser
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60 tat ctg gag agc tat atc agt acc atc ggc gtt gat ttt aaa atc cgc 144
 Tyr Leu Glu Ser Tyr Ile Ser Thr Ile Gly Val Asp Phe Lys Ile Arg
 35 40 45

act gtt gag caa gat ggg aag aca ata aag ctg caa att tgg gat act 192
 Thr Val Glu Gln Asp Gly Lys Thr Ile Lys Leu Gln Ile Trp Asp Thr
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65 gct ggc caa gag cga ttt agg acc att aca agc agc tac tac cgt ggt 240
 Ala Gly Gln Glu Arg Phe Arg Thr Ile Thr Ser Ser Tyr Tyr Arg Gly

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	gcc cac ggg atc att gtt gtt tat gat gtg act gat cag gag agc ttc							288
5	Ala His Gly Ile Ile Val Val Tyr Asp Val Thr Asp Gln Glu Ser Phe		85		90		95	
	aac aat gtc aag cag tgg ctg aat gaa att gat agg tat gct agt gaa							336
10	Asn Asn Val Lys Gln Trp Leu Asn Glu Ile Asp Arg Tyr Ala Ser Glu		100		105		110	
	aat gtg aac aag ctc ttg gtg ggg aac aag tgt gat cta gct gag aac							384
15	Asn Val Asn Lys Leu Leu Val ggg Asn Lys Cys Asp Leu Ala Glu Asn		115		120		125	
	aga gtg gtt tct tat gag gct ggc aag gcc ctt gct gat gag att gga							432
20	Arg Val Val Ser Tyr Glu Ala Gly Lys Ala Leu Ala Asp Glu Ile Gly		130		135		140	
	ata cca ttc ctg gag acc agt gcg aag gat gca aca aat gtg gag aag							480
25	Ile Pro Phe Leu Glu Thr Ser Ala Lys Asp Ala Thr Asn Val Glu Lys		145		150		155	
	gca ttc atg acc atg gca gga gag ata aag aac agg atg gca agc caa							528
30	Ala Phe Met Thr Met Ala Gly Glu Ile Lys Asn Arg Met Ala Ser Gln		165		170		175	
	ggc cgt aca aat gca agc aag cct gca acc gtg caa atg ccg agg caa							576
35	Gly Arg Thr Asn Ala Ser Lys Pro Ala Thr Val Gln Met Pro Arg Gln		180		185		190	
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	Tyr Leu Glu Ser Tyr Ile Ser Thr Ile Gly Val Asp Phe Lys Ile Arg		35		40		45	
55	Thr Val Glu Gln Asp Gly Lys Thr Ile Lys Leu Gln Ile Trp Asp Thr		50		55		60	
60	Ala Gly Gln Glu Arg Phe Arg Thr Ile Thr Ser Ser Tyr Tyr Arg Gly		65		70		75	80
65	Ala His Gly Ile Ile Val Val Tyr Asp Val Thr Asp Gln Glu Ser Phe		85		90		95	
	Asn Asn Val Lys Gln Trp Leu Asn Glu Ile Asp Arg Tyr Ala Ser Glu		100		105		110	

Asn Val Asn Lys Leu Leu Val Gly Asn Lys Cys Asp Leu Ala Glu Asn
 115 120 125
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 Arg Val Val Ser Tyr Glu Ala Gly Lys Ala Leu Ala Asp Glu Ile Gly
 130 135 140
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 Ile Pro Phe Leu Glu Thr Ser Ala Lys Asp Ala Thr Asn Val Glu Lys
 145 150 155 160
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 Ala Phe Met Thr Met Ala Gly Glu Ile Lys Asn Arg Met Ala Ser Gln
 165 170 175
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 Pro Val Ala Gln Gln Ser Ser Cys Cys Ser
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 Val Ser Asp Pro Gly Gly Asp Ser Gly Thr Lys Arg Pro Lys Phe Asp
 20 25 30
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 cag gat gga gca gga gat ata gtc att gag cca cat cta act gat gac 144
 Gln Asp Gly Ala Gly Asp Ile Val Ile Glu Pro His Leu Thr Asp Asp
 35 40 45
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 aaa cct atg cgc gta gac caa gaa tca tct tca tct cat aga gat gct 192
 Lys Pro Met Arg Val Asp Gln Glu Ser Ser Ser Ser His Arg Asp Ala
 50 55 60
 55
 gag gca agc aca tct act agt aag aat cct ggt aga act gaa gaa gca 240
 Glu Ala Ser Thr Ser Thr Ser Lys Asn Pro Gly Arg Thr Glu Glu Ala
 65 70 75 80
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 ggt gcg gat att ctt cca aaa gaa atg aat gag atg aca ata agt gat 288
 Gly Ala Asp Ile Leu Pro Lys Glu Met Asn Glu Met Thr Ile Ser Asp
 85 90 95
 65
 gat aaa gtt gat ggc cat aat gat aag gaa tct gaa ggt gtt att gtt 336
 Asp Lys Val Asp Gly His Asn Asp Lys Glu Ser Glu Gly Val Ile Val
 100 105 110
 65
 aat gca aat gga aca gaa aca ggt cag att att gtg aca tca att gga 384
 Asn Ala Asn Gly Thr Glu Thr Gly Gln Ile Ile Val Thr Ser Ile Gly
 115 120 125

	ggt caa aat ggg aag cca aag cag aag gta tca tac atg gca gaa cgt	432
	Gly Gln Asn Gly Lys Pro Lys Gln Lys Val Ser Tyr Met Ala Glu Arg	
	130 135 140	
5	gta gtt ggt act ggt tca ttt ggt gta gtt ttt cag gcc aag tgc ttg	480
	Val Val Gly Thr Gly Ser Phe Gly Val Val Phe Gln Ala Lys Cys Leu	
	145 150 155 160	
10	gaa act gga gag act gtt gcc att aag aag gtt ctg caa gat aaa aga	528
	Glu Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg	
	165 170 175	
15	tat aag aac aga gag ctc caa aca atg caa ctg ctt gac cat cct aat	576
	Tyr Lys Asn Arg Glu Leu Gln Thr Met Gln Leu Leu Asp His Pro Asn	
	180 185 190	
20	gtg gtc cag cta aag cat cac ttc ttt tcg acg act gag agg ggt gaa	624
	Val Val Gln Leu Lys His His Phe Phe Ser Thr Thr Glu Arg Gly Glu	
	195 200 205	
25	gtt tac ctc aac ctt gta ctt gaa tat gtc tca gag aca gtt tat cgt	672
	Val Tyr Leu Asn Leu Val Leu Glu Tyr Val Ser Glu Thr Val Tyr Arg	
	210 215 220	
30	gtt gct aaa tac tac aat cgg atg aac cag cgt gtg ccc ata ttg cat	720
	Val Ala Lys Tyr Tyr Asn Arg Met Asn Gln Arg Val Pro Ile Leu His	
	225 230 235 240	
35	ggt aag ctg tat gca tat cag atg tgc cgt gcc ctt gca tat atc cat	768
	Val Lys Leu Tyr Ala Tyr Gln Met Cys Arg Ala Leu Ala Tyr Ile His	
	245 250 255	
40	cgt gtt gtt ggt gtc tgc cat cga gat att aaa cct caa aat cta ctg	816
	Arg Val Val Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu	
	260 265 270	
45	gtc aat cct cat aca cat caa ctg aag ctt tgt gat ttt gga agt gct	864
	Val Asn Pro His Thr His Gln Leu Lys Leu Cys Asp Phe Gly Ser Ala	
	275 280 285	
50	aag aaa ttg gtt cct ggt gaa cct aac ata tca tac att tgc tcg cgg	912
	Lys Lys Leu Val Pro Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg	
	290 295 300	
55	tat tat agg gct cct gaa cta ata ttt gga gct aca gag tat acc aca	960
	Tyr Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr	
	305 310 315 320	
60	gca att gat atc tgg tct gtt ggt tgt gta cta gct gag ctt ctg att	1008
	Ala Ile Asp Ile Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Ile	
	325 330 335	
65	ggt cag cct ctg ttc cct gga gaa agt ggt gtt gat caa ctg gtg gaa	1056
	Gly Gln Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu	
	340 345 350	
70	ata ata aag att ttg ggt aca cca act aga gaa gaa atc agg tgc atg	1104
	Ile Ile Lys Ile Leu Gly Thr Pro Thr Arg Glu Glu Ile Arg Cys Met	
	355 360 365	
75	aat cca aac tat tct gaa ttc aaa ttc cct cag ata aaa gct cat cca	1152
	Asn Pro Asn Tyr Ser Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro	
	370 375 380	
80	tgg cac aag ctt ttt ggt aag cgc atg cca cct gaa gct gtt gat ctt	1200
	Trp His Lys Leu Phe Gly Lys Arg Met Pro Pro Glu Ala Val Asp Leu	
	385 390 395 400	

	gtg	tca	agg	ttg	ctg	cag	tac	tcg	cca	aat	ttg	cgt	tgc	aca	gct	gtt	1248
	Val	Ser	Arg	Leu	Leu	Gln	Tyr	Ser	Pro	Asn	Leu	Arg	Cys	Thr	Ala	Val	
				405					410						415		
5	gat	gct	tgt	gct	cat	cca	ttc	ttt	gat	gaa	ctg	cgg	gat	ccc	aag	acc	1296
	Asp	Ala	Cys	Ala	His	Pro	Phe	Phe	Asp	Glu	Leu	Arg	Asp	Pro	Lys	Thr	
			420					425						430			
10	tgc	ttg	tca	aat	gga	cga	tca	tta	cca	ccc	ttg	ttc	gac	ttc	tca	gct	1344
	Cys	Leu	Ser	Asn	Gly	Arg	Ser	Leu	Pro	Pro	Leu	Phe	Asp	Phe	Ser	Ala	
			435					440					445				
15	gct	gaa	ttg	gaa	ggc	ctt	cct	gtt	gag	cta	gtc	cac	cga	atc	att	cct	1392
	Ala	Glu	Leu	Glu	Gly	Leu	Pro	Val	Glu	Leu	Val	His	Arg	Ile	Ile	Pro	
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20	gaa	cat	atg	agg	aag	tga											1410
	Glu	His	Met	Arg	Lys												
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				20					25					30			
40	Gln	Asp	Gly	Ala	Gly	Asp	Ile	Val	Ile	Glu	Pro	His	Leu	Thr	Asp	Asp	
			35					40					45				
45	Lys	Pro	Met	Arg	Val	Asp	Gln	Glu	Ser	Ser	Ser	Ser	His	Arg	Asp	Ala	
		50					55					60					
50	Glu	Ala	Ser	Thr	Ser	Thr	Ser	Lys	Asn	Pro	Gly	Arg	Thr	Glu	Glu	Ala	
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55	Gly	Ala	Asp	Ile	Leu	Pro	Lys	Glu	Met	Asn	Glu	Met	Thr	Ile	Ser	Asp	
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60	Asp	Lys	Val	Asp	Gly	His	Asn	Asp	Lys	Glu	Ser	Glu	Gly	Val	Ile	Val	
				100					105					110			
65	Asn	Ala	Asn	Gly	Thr	Glu	Thr	Gly	Gln	Ile	Ile	Val	Thr	Ser	Ile	Gly	
			115					120					125				
70	Gly	Gln	Asn	Gly	Lys	Pro	Lys	Gln	Lys	Val	Ser	Tyr	Met	Ala	Glu	Arg	
			130				135					140					
75	Val	Val	Gly	Thr	Gly	Ser	Phe	Gly	Val	Val	Phe	Gln	Ala	Lys	Cys	Leu	
							150				155					160	

Glu Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg
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 5 Tyr Lys Asn Arg Glu Leu Gln Thr Met Gln Leu Leu Asp His Pro Asn
 180 185 190
 10 Val Val Gln Leu Lys His His Phe Phe Ser Thr Thr Glu Arg Gly Glu
 195 200 205
 15 Val Tyr Leu Asn Leu Val Leu Glu Tyr Val Ser Glu Thr Val Tyr Arg
 210 215 220
 20 Val Ala Lys Tyr Tyr Asn Arg Met Asn Gln Arg Val Pro Ile Leu His
 225 230 235 240
 Val Lys Leu Tyr Ala Tyr Gln Met Cys Arg Ala Leu Ala Tyr Ile His
 245 250 255
 25 Arg Val Val Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu
 260 265 270
 30 Val Asn Pro His Thr His Gln Leu Lys Leu Cys Asp Phe Gly Ser Ala
 275 280 285
 35 Lys Lys Leu Val Pro Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg
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 Tyr Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr
 305 310 315 320
 40 Ala Ile Asp Ile Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Ile
 325 330 335
 45 Gly Gln Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu
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 50 Ile Ile Lys Ile Leu Gly Thr Pro Thr Arg Glu Glu Ile Arg Cys Met
 355 360 365
 55 Asn Pro Asn Tyr Ser Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro
 370 375 380
 Trp His Lys Leu Phe Gly Lys Arg Met Pro Pro Glu Ala Val Asp Leu
 385 390 395 400
 60 Val Ser Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Cys Thr Ala Val
 405 410 415
 65 Asp Ala Cys Ala His Pro Phe Phe Asp Glu Leu Arg Asp Pro Lys Thr
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Cys Leu Ser Asn Gly Arg Ser Leu Pro Pro Leu Phe Asp Phe Ser Ala
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 Gly Val Arg Phe Ser Asp Val Pro Val Asn Pro Gly Leu Ser Phe His
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 ttc atc ctc gcc ttc gcc atc gac tac ttc atg gcg acg cag tcc tcc 144
 Phe Ile Leu Ala Phe Ala Ile Asp Tyr Phe Met Ala Thr Gln Ser Ser
 35 40 45

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 aag ccg gcg cca gcc aac ggc gtg ttc gcc ccg tac tgg gac acg gcc 192
 Lys Pro Ala Pro Ala Asn Gly Val Phe Ala Pro Tyr Trp Asp Thr Ala
 50 55 60

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 aac ctg tcc ccg gcc gcc gtc gcc gcg gcc aag gcg gcg cac ccc aac 240
 Asn Leu Ser Pro Ala Ala Val Ala Ala Lys Ala Ala His Pro Asn
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50
 ctc agc gtc atc ctc gcc ctc ggc ggc gac acc gtc cag aac acc ggc 288
 Leu Ser Val Ile Leu Ala Leu Gly Gly Asp Thr Val Gln Asn Thr Gly
 85 90 95

55
 gtc aac gcc acg ttc gcg ccg acg tcg tcc gtc gac gcg tgg gtg cgc 336
 Val Asn Ala Thr Phe Ala Pro Thr Ser Ser Val Asp Ala Trp Val Arg
 100 105 110

60
 aac gcc gcc gac tcc gtc tcc ggc ctc atc gac gcc tac ggc ctc gac 384
 Asn Ala Ala Asp Ser Val Ser Gly Leu Ile Asp Ala Tyr Gly Leu Asp
 115 120 125

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 ggc gtc gac gtc gac tac gag cac ttc gcc gcc ggc gtg gac acg ttc 432
 Gly Val Asp Val Asp Tyr Glu His Phe Ala Ala Gly Val Asp Thr Phe
 130 135 140

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 gtg gag tgc atc ggt cgc ctc ctc acc gag ctc aag gcg ccg cac ccg 480
 Val Glu Cys Ile Gly Arg Leu Leu Thr Glu Leu Lys Ala Arg His Pro
 145 150 155 160

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 aac atc gcc acc tcc atc gcg ccg ttc gag cac ccc gtg gtg cag cgc 528
 Asn Ile Ala Thr Ser Ile Ala Pro Phe Glu His Pro Val Val Gln Arg
 165 170 175

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	Tyr Tyr Gln Pro Leu Trp Arg Arg Tyr Ala Gly Val Ile Asp Tyr Val	
	180 185 190	
5	aac ttc cag ttc tac ggc tac ggc gcc aac acc gac gtg gcg acg tac	624
	Asn Phe Gln Phe Tyr Gly Tyr Gly Ala Asn Thr Asp Val Ala Thr Tyr	
	195 200 205	
10	gtg atg ttc tac gac gag cag gcg gcg aac tac ccc ggc agc aag ctg	672
	Val Met Phe Tyr Asp Glu Gln Ala Ala Asn Tyr Pro Gly Ser Lys Leu	
	210 215 220	
15	ctc gcc agc ttc aag acc ggg aac gtc acc ggg ctg ctc tcg ccg gag	720
	Leu Ala Ser Phe Lys Thr Gly Asn Val Thr Gly Leu Leu Ser Pro Glu	
	225 230 235 240	
20	cag ggg atc gcc ggc gcg aag gag ttg cag cgg cag ggg aag ctg ccg	768
	Gln Gly Ile Ala Gly Ala Lys Glu Leu Gln Arg Gln Gly Lys Leu Pro	
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	ggg ttg ttc atc tgg tca gcg gat agc tcc atg gtc agc agc tac aag	816
	Gly Leu Phe Ile Trp Ser Ala Asp Ser Ser Met Val Ser Ser Tyr Lys	
	260 265 270	
25	ttt gag tac gag acc aag gct cag gag atc gtc gcc aac cac tga	861
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	20 25 30	
45	Phe Ile Leu Ala Phe Ala Ile Asp Tyr Phe Met Ala Thr Gln Ser Ser	
	35 40 45	
50	Lys Pro Ala Pro Ala Asn Gly Val Phe Ala Pro Tyr Trp Asp Thr Ala	
	50 55 60	
55	Asn Leu Ser Pro Ala Ala Val Ala Ala Ala Lys Ala Ala His Pro Asn	
	65 70 75 80	
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	85 90 95	
60	Val Asn Ala Thr Phe Ala Pro Thr Ser Ser Val Asp Ala Trp Val Arg	
	100 105 110	
65	Asn Ala Ala Asp Ser Val Ser Gly Leu Ile Asp Ala Tyr Gly Leu Asp	
	115 120 125	

Gly Val Asp Val Asp Tyr Glu His Phe Ala Ala Gly Val Asp Thr Phe
 130 135 140

5 Val Glu Cys Ile Gly Arg Leu Leu Thr Glu Leu Lys Ala Arg His Pro
 145 150 155 160

10 Asn Ile Ala Thr Ser Ile Ala Pro Phe Glu His Pro Val Val Gln Arg
 165 170 175

15 Tyr Tyr Gln Pro Leu Trp Arg Arg Tyr Ala Gly Val Ile Asp Tyr Val
 180 185 190

Asn Phe Gln Phe Tyr Gly Tyr Gly Ala Asn Thr Asp Val Ala Thr Tyr
 195 200 205

20 Val Met Phe Tyr Asp Glu Gln Ala Ala Asn Tyr Pro Gly Ser Lys Leu
 210 215 220

25 Leu Ala Ser Phe Lys Thr Gly Asn Val Thr Gly Leu Leu Ser Pro Glu
 225 230 235 240

30 Gln Gly Ile Ala Gly Ala Lys Glu Leu Gln Arg Gln Gly Lys Leu Pro
 245 250 255

35 Gly Leu Phe Ile Trp Ser Ala Asp Ser Ser Met Val Ser Ser Tyr Lys
 260 265 270

Phe Glu Tyr Glu Thr Lys Ala Gln Glu Ile Val Ala Asn His
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 Thr Thr Thr Asn Ala Gly Ala Pro Val Trp Asn Asp Asn Glu Ala Leu
 20 25 30

60 aca gtg ggg ccc agg ggg ccg atc ctc ctc gag gac tac cac ctg atc 144
 Thr Val Gly Pro Arg Gly Pro Ile Leu Leu Glu Asp Tyr His Leu Ile
 35 40 45

65 gag aag gtg gcg cac ttc gcc cgg gag cgc atc ccg gag cgc gtg gtc 192
 Glu Lys Val Ala His Phe Ala Arg Glu Arg Ile Pro Glu Arg Val Val
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cac gcc cgc ggc gcc tcc gcc aag ggc ttc ttc gag tgc acc cac gac 240

	His	Ala	Arg	Gly	Ala	Ser	Ala	Lys	Gly	Phe	Phe	Glu	Cys	Thr	His	Asp	
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5	gtc	acc	gac	atc	acc	tgc	gcc	gac	ttc	ctc	cgg	tcc	ccg	ggc	gcc	cag	288
	Val	Thr	Asp	Ile	Thr	Cys	Ala	Asp	Phe	Leu	Arg	Ser	Pro	Gly	Ala	Gln	
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	Arg	Glu	Gly	Asn	Trp	Asp	Leu	Leu	Gly	Asn	Asn	Phe	Pro	Val	Phe	Phe	
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	Asn	Pro	Arg	Ser	His	Val	Gln	Glu	Tyr	Trp	Arg	Val	Phe	Asp	Phe	Leu	
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	Ser	His	His	Pro	Glu	Ser	Leu	His	Thr	Phe	Phe	Phe	Leu	Phe	Asp	Asp	
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	Val	Gly	Ile	Pro	Thr	Asp	Tyr	Arg	His	Met	Asp	Gly	Phe	Gly	Val	Asn	
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	Thr	Tyr	Thr	Phe	Val	Thr	Arg	Asp	Ala	Lys	Ala	Arg	Tyr	Val	Lys	Phe	
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	Asp	Ser	Ile	Ala	Ala	Gly	Asn	Phe	Pro	Glu	Trp	Lys	Leu	Phe	Val	Gln	
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	Val	Ile	Asp	Pro	Glu	Glu	Glu	Glu	Arg	Phe	Asp	Phe	Asp	Pro	Leu	Asp	
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	Gln	Leu	Ala	Phe	Gly	Pro	Gly	Leu	Val	Val	Pro	Gly	Ile	Tyr	Tyr	Ser	
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	Arg	Tyr	Arg	Leu	Gly	Pro	Asn	Tyr	Leu	Met	Leu	Pro	Val	Asn	Ala	Pro	
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	Arg	His	Ala	Pro	Pro	Thr	Pro	Ile	Thr	Pro	Arg	Pro	Val	Val	Gly	Arg	
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25	agg	cag	aag	gcg	acg	ata	cac	aag	cag	aac	gac	ttc	aag	cag	ccc	ggg	1296
	Arg	Gln	Lys	Ala	Thr	Ile	His	Lys	Gln	Asn	Asp	Phe	Lys	Gln	Pro	Gly	
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25	Asn Pro Arg Ser His Val Gln Glu Tyr Trp Arg Val Phe Asp Phe Leu		
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	290	295	300
70	Arg Leu Val Leu Asn Arg Asn Val Asp Asn Phe Phe Asn Glu Asn Glu		
	305	310	315
75	Gln Leu Ala Phe Gly Pro Gly Leu Val Val Pro Gly Ile Tyr Tyr Ser		
	325	330	335
80	Asp Asp Lys Met Leu Gln Cys Arg Val Phe Ala Tyr Ala Asp Thr Gln		
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 55 1 5 10 15
 gcg gcc aag gac tac acg gac ccg ccg ccg gcg ccg ctg atc gac gcg 96
 Ala Ala Lys Asp Tyr Thr Asp Pro Pro Pro Ala Pro Leu Ile Asp Ala
 20 25 30
 60 gcg gag ctg ggg tcg tgg tcg ctg tac cgc gcc gtc atc gcc gag ttc 144
 Ala Glu Leu Gly Ser Trp Ser Leu Tyr Arg Ala Val Ile Ala Glu Phe
 35 40 45
 65 atc gcc acg ctg ctg ttc ctg tac atc acc gtg gcc acg gtg atc ggg 192
 Ile Ala Thr Leu Leu Phe Leu Tyr Ile Thr Val Ala Thr Val Ile Gly
 50 55 60

	tac aag cac cag acg gac gcg tcg gcc tcc ggc gcc gac gcg gcg tgc	240
	Tyr Lys His Gln Thr Asp Ala Ser Ala Ser Gly Ala Asp Ala Ala Cys	
	65 70 75 80	
5	ggc ggc gtg ggc gtg ctc ggc atc tcg tgg gcg ttc ggc ggc atg atc	288
	Gly Gly Val Gly Leu Gly Ile Ser Trp Ala Phe Gly Gly Met Ile	
	85 90 95	
10	ttc atc ctg gtc tac tgc acc gcc ggc atc tcc ggc ggg cac atc aac	336
	Phe Ile Leu Val Tyr Cys Thr Ala Gly Ile Ser Gly Gly His Ile Asn	
	100 105 110	
15	ccg gcg gtg acg ttc ggg ctc ttc ctg gcg cgc aag gtg tcc ctg gtc	384
	Pro Ala Val Thr Phe Gly Leu Phe Leu Ala Arg Lys Val Ser Leu Val	
	115 120 125	
20	cgc gcc atc ctc tac atc gtg gcg cag tgc ctc ggc gcc atc tgc ggc	432
	Arg Ala Ile Leu Tyr Ile Val Ala Gln Cys Leu Gly Ala Ile Cys Gly	
	130 135 140	
25	gtc ggg ctc gtc aat gcg ttc cca aac gcc tac ttc aac agg tac ggg	480
	Val Gly Leu Val Asn Ala Phe Pro Asn Ala Tyr Phe Asn Arg Tyr Gly	
	145 150 155 160	
30	ggc ggc gcc aac acc ctc gcc gcc ggc tac tcc aag ggc acc ggc ctc	528
	Gly Gly Ala Asn Thr Leu Ala Ala Gly Tyr Ser Lys Gly Thr Gly Leu	
	165 170 175	
35	gcc gcc gag atc atc ggc acc ttc gtg ctc gtc tac acc gtc ttc tcc	576
	Ala Ala Glu Ile Ile Gly Thr Phe Val Leu Val Tyr Thr Val Phe Ser	
	180 185 190	
40	gcc acc gac ccc aag cgc aac gcc cgc gac tca cat gtc ccg gtc ttg	624
	Ala Thr Asp Pro Lys Arg Asn Ala Arg Asp Ser His Val Pro Val Leu	
	195 200 205	
45	gcg ccg ctg cca atc ggc ttc gcc gtg ttc atg gtc cac ctg gcg acg	672
	Ala Pro Leu Pro Ile Gly Phe Ala Val Phe Met Val His Leu Ala Thr	
	210 215 220	
50	atc ccg atc acc ggc acc ggc atc aac ccg gcc agg agc atc gga gcg	720
	Ile Pro Ile Thr Gly Thr Gly Ile Asn Pro Ala Arg Ser Ile Gly Ala	
	225 230 235 240	
55	gcc gtc atc ttc aac aac gag aag gcg tgg cac aac cat tgg atc ttc	768
	Ala Val Ile Phe Asn Asn Glu Lys Ala Trp His Asn His Trp Ile Phe	
	245 250 255	
60	tgg gtc ggc ccg ttc gtc ggc gcc gcc atc gcg gcg ttc tac cac cag	816
	Trp Val Gly Pro Phe Val Gly Ala Ala Ile Ala Ala Phe Tyr His Gln	
	260 265 270	
65	tac atc ctc cgg gcc ggc gcc atc aag gcc ctc ggc tcc ttc agg agc	864
	Tyr Ile Leu Arg Ala Gly Ala Ile Lys Ala Leu Gly Ser Phe Arg Ser	
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	Asn Ala	
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Ala	Glu	Leu	Gly	Ser	Trp	Ser	Leu	Tyr	Arg	Ala	Val	Ile	Ala	Glu	Phe	35	40	45	
Ile	Ala	Thr	Leu	Leu	Phe	Leu	Tyr	Ile	Thr	Val	Ala	Thr	Val	Ile	Gly	50	55	60	
Tyr	Lys	His	Gln	Thr	Asp	Ala	Ser	Ala	Ser	Gly	Ala	Asp	Ala	Ala	Cys	65	70	75	80
Gly	Gly	Val	Gly	Val	Leu	Gly	Ile	Ser	Trp	Ala	Phe	Gly	Gly	Met	Ile	85	90	95	
Phe	Ile	Leu	Val	Tyr	Cys	Thr	Ala	Gly	Ile	Ser	Gly	Gly	His	Ile	Asn	100	105	110	
Pro	Ala	Val	Thr	Phe	Gly	Leu	Phe	Leu	Ala	Arg	Lys	Val	Ser	Leu	Val	115	120	125	
Arg	Ala	Ile	Leu	Tyr	Ile	Val	Ala	Gln	Cys	Leu	Gly	Ala	Ile	Cys	Gly	130	135	140	
Val	Gly	Leu	Val	Asn	Ala	Phe	Pro	Asn	Ala	Tyr	Phe	Asn	Arg	Tyr	Gly	145	150	155	160
Gly	Gly	Ala	Asn	Thr	Leu	Ala	Ala	Gly	Tyr	Ser	Lys	Gly	Thr	Gly	Leu	165	170	175	
Ala	Ala	Glu	Ile	Ile	Gly	Thr	Phe	Val	Leu	Val	Tyr	Thr	Val	Phe	Ser	180	185	190	
Ala	Thr	Asp	Pro	Lys	Arg	Asn	Ala	Arg	Asp	Ser	His	Val	Pro	Val	Leu	195	200	205	
Ala	Pro	Leu	Pro	Ile	Gly	Phe	Ala	Val	Phe	Met	Val	His	Leu	Ala	Thr	210	215	220	
Ile	Pro	Ile	Thr	Gly	Thr	Gly	Ile	Asn	Pro	Ala	Arg	Ser	Ile	Gly	Ala	225	230	235	240
Ala	Val	Ile	Phe	Asn	Asn	Glu	Lys	Ala	Trp	His	Asn	His	Trp	Ile	Phe	245	250	255	
Trp	Val	Gly	Pro	Phe	Val	Gly	Ala	Ala	Ile	Ala	Ala	Phe	Tyr	His	Gln	260	265	270	

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 Pro Thr Val Asp Gly Met Val Asp Leu Lys Ile Pro Ser Gly Thr Gln
 20 25 30

30 cca ggc aca acg tta gtg atg tcc aag aaa ggt gtc cca ctc ctc ggg 144
 Pro Gly Thr Thr Leu Val Met Ser Lys Lys Gly Val Pro Leu Leu Gly
 35 40 45

35 aag tca aat gct cgt gga gac cag cta gtg cgt gta cag gtc gag att 192
 Lys Ser Asn Ala Arg Gly Asp Gln Leu Val Arg Val Gln Val Glu Ile
 50 55 60

40 cca aag cgt ctg agc agc gac gag agg aag ctg att gaa gaa ctt gca 240
 Pro Lys Arg Leu Ser Ser Asp Glu Arg Lys Leu Ile Glu Glu Leu Ala
 65 70 75 80

40 aac cta aac aag gct caa aca gca aac agc agg aga taa 279
 Asn Leu Asn Lys Ala Gln Thr Ala Asn Ser Arg Arg
 85 90

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 20 25 30

60 Pro Gly Thr Thr Leu Val Met Ser Lys Lys Gly Val Pro Leu Leu Gly
 35 40 45

65 Lys Ser Asn Ala Arg Gly Asp Gln Leu Val Arg Val Gln Val Glu Ile
 50 55 60

Pro Lys Arg Leu Ser Ser Asp Glu Arg Lys Leu Ile Glu Glu Leu Ala

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	1 5 10 15				
25	cag tgc aag ccc ctc ccc gag ccc gag gtc aga gca ctt tgc gag aag				96
	Gln Cys Lys Pro Leu Pro Glu Pro Glu Val Arg Ala Leu Cys Glu Lys				
	20 25 30				
30	gca aaa gag ata ttg atg gag gag agc aac gtt caa cct gta aag agt				144
	Ala Lys Glu Ile Leu Met Glu Glu Ser Asn Val Gln Pro Val Lys Ser				
	35 40 45				
35	cct gtt aca ata tgt ggt gat att cat ggg cag ttt cat gac ctt gca				192
	Pro Val Thr Ile Cys Gly Asp Ile His Gly Gln Phe His Asp Leu Ala				
	50 55 60				
40	gaa ctg ttc cga atc ggt gga aag tgc cca gat aca aac tac ttg ttt				240
	Glu Leu Phe Arg Ile Gly Gly Lys Cys Pro Asp Thr Asn Tyr Leu Phe				
	65 70 75 80				
45	atg gga gat tac gtg gat cgt ggt tat tat tct gtt gaa act gtc acg				288
	Met Gly Asp Tyr Val Asp Arg Gly Tyr Tyr Ser Val Glu Thr Val Thr				
	85 90 95				
50	ctt ttg gtg gct tta aag gtt cgt tat cct cag cga att act att ctc				336
	Leu Leu Val Ala Leu Lys Val Arg Tyr Pro Gln Arg Ile Thr Ile Leu				
	100 105 110				
55	aga gga aac cac gaa agt cga cag atc act caa gtt tat gga ttc tat				384
	Arg Gly Asn His Glu Ser Arg Gln Ile Thr Gln Val Tyr Gly Phe Tyr				
	115 120 125				
60	gac gag tgc tta agg aag tac ggg aat gca aat gtg tgg aaa act ttt				432
	Asp Glu Cys Leu Arg Lys Tyr Gly Asn Ala Asn Val Trp Lys Thr Phe				
	130 135 140				
65	aca gat ctc ttc gat tac ttc ccc ttg aca gca ttg gtt gag tca gaa				480
	Thr Asp Leu Phe Asp Tyr Phe Pro Leu Thr Ala Leu Val Glu Ser Glu				
	145 150 155 160				
70	ata ttt tgc ctg cat ggt gga tta tcg cca tcc att gag aca ctt gat				528
	Ile Phe Cys Leu His Gly Gly Leu Ser Pro Ser Ile Glu Thr Leu Asp				
	165 170 175				
75	aac ata cgt aac ttc gat cgt gtc caa gaa gtt ccc cat gaa ggg ccc				576
	Asn Ile Arg Asn Phe Asp Arg Val Gln Glu Val Pro His Glu Gly Pro				
	180 185 190				
80	atg tgt gat ctt ctg tgg tct gat cca gac gat cga tgt ggt tgg ggt				624
	Met Cys Asp Leu Leu Trp Ser Asp Pro Asp Asp Arg Cys Gly Trp Gly				

	195	200	205	
	att tct cct cga ggt gct gga tac acc ttc ggg cag gat ata tca gag			672
5	Ile Ser Pro Arg Gly Ala Gly Tyr Thr Phe Gly Gln Asp Ile Ser Glu			
	210	215	220	
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	Gln Phe Asn His Thr Asn Asn Leu Arg Leu Ile Ala Arg Ala His Gln			
10	225	230	235	240
	ttg gtc atg gag gga ttc aat tgg gct cat gag caa aaa gtt gtt acc			768
	Leu Val Met Glu Gly Phe Asn Trp Ala His Glu Gln Lys Val Val Thr			
	245	250	255	
15	ata ttt agt gca cct aat tat tgc tat cgc tgt ggg aac atg gca tca			816
	Ile Phe Ser Ala Pro Asn Tyr Cys Tyr Arg Cys Gly Asn Met Ala Ser			
	260	265	270	
	atc ttg gaa gtt gat gat tgc agg gag cat aca ttc atc cag ttt gag			864
20	Ile Leu Glu Val Asp Asp Cys Arg Glu His Thr Phe Ile Gln Phe Glu			
	275	280	285	
	cca gcc cca aga agg gga gag cca gat gta act cgt aga aca cct gac			912
	Pro Ala Pro Arg Arg Gly Glu Pro Asp Val Thr Arg Arg Thr Pro Asp			
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	Tyr Phe Leu			
30	305			
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	Gln Cys Lys Pro Leu Pro Glu Pro Glu Val Arg Ala Leu Cys Glu Lys			
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	Ala Lys Glu Ile Leu Met Glu Glu Ser Asn Val Gln Pro Val Lys Ser			
	35	40	45	
50	Pro Val Thr Ile Cys Gly Asp Ile His Gly Gln Phe His Asp Leu Ala			
	50	55	60	
55	Glu Leu Phe Arg Ile Gly Gly Lys Cys Pro Asp Thr Asn Tyr Leu Phe			
	65	70	75	80
	Met Gly Asp Tyr Val Asp Arg Gly Tyr Tyr Ser Val Glu Thr Val Thr			
60	85	90	95	
	Leu Leu Val Ala Leu Lys Val Arg Tyr Pro Gln Arg Ile Thr Ile Leu			
65	100	105	110	
	Arg Gly Asn His Glu Ser Arg Gln Ile Thr Gln Val Tyr Gly Phe Tyr			
	115	120	125	

Asp Glu Cys Leu Arg Lys Tyr Gly Asn Ala Asn Val Trp Lys Thr Phe
 130 135 140
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 Thr Asp Leu Phe Asp Tyr Phe Pro Leu Thr Ala Leu Val Glu Ser Glu
 145 150 155 160
 10
 Ile Phe Cys Leu His Gly Gly Leu Ser Pro Ser Ile Glu Thr Leu Asp
 165 170 175
 15
 Asn Ile Arg Asn Phe Asp Arg Val Gln Glu Val Pro His Glu Gly Pro
 180 185 190
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 Met Cys Asp Leu Leu Trp Ser Asp Pro Asp Asp Arg Cys Gly Trp Gly
 195 200 205
 25
 Ile Ser Pro Arg Gly Ala Gly Tyr Thr Phe Gly Gln Asp Ile Ser Glu
 210 215 220
 30
 Gln Phe Asn His Thr Asn Asn Leu Arg Leu Ile Ala Arg Ala His Gln
 225 230 235 240
 35
 Leu Val Met Glu Gly Phe Asn Trp Ala His Glu Gln Lys Val Val Thr
 245 250 255
 40
 Ile Phe Ser Ala Pro Asn Tyr Cys Tyr Arg Cys Gly Asn Met Ala Ser
 260 265 270
 45
 Ile Leu Glu Val Asp Asp Cys Arg Glu His Thr Phe Ile Gln Phe Glu
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 Pro Ala Pro Arg Arg Gly Glu Pro Asp Val Thr Arg Arg Thr Pro Asp
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 Tyr Phe Leu
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 1 5 10 15
 75
 ttg atg gcg gtc gcc gtc ggc gga gag gcg gcg tcg gtg gtc gtc ggc 96
 Leu Met Ala Val Ala Val Gly Gly Glu Ala Ala Ser Val Val Val Gly
 20 25 30

	acg gcc aag tgc gcc gac tgc acc cgg aag aac atg aaa gct gag gat	144
	Thr Ala Lys Cys Ala Asp Cys Thr Arg Lys Asn Met Lys Ala Glu Asp	
	35 40 45	
5		
	gct ttc aag aac ctc cag gtg gcg att aag tgc aag aac ggc aac ggc	192
	Ala Phe Lys Asn Leu Gln Val Ala Ile Lys Cys Lys Asn Gly Asn Gly	
	50 55 60	
10		
	gag tac gag agc aag gcc act gga aag ctc gac ggc acc ggt gcc ttc	240
	Glu Tyr Glu Ser Lys Ala Thr Gly Lys Leu Asp Gly Thr Gly Ala Phe	
	65 70 75 80	
15		
	agc gtc ccc ctt gac gcc gac ctc cac agc tcc gac tgc atc gct cag	288
	Ser Val Pro Leu Asp Ala Asp Leu His Ser Ser Asp Cys Ile Ala Gln	
	85 90 95	
20		
	ctc cac agc gcc acc aac gag cca tgc ccc ggc cag gag cca tcc aag	336
	Leu His Ser Ala Thr Asn Glu Pro Cys Pro Gly Gln Glu Pro Ser Lys	
	100 105 110	
25		
	atc gtg cca atg tcg gag ggc acc ttt gct gcc gtc gcc ggc aag acc	384
	Ile Val Pro Met Ser Glu Gly Thr Phe Ala Ala Val Ala Gly Lys Thr	
	115 120 125	
30		
	cac tac cga tcg gcg ttg tgc gcg tcc gtg acc atc tgc ggc cca atc	432
	His Tyr Arg Ser Ala Leu Cys Ala Ser Val Thr Ile Cys Gly Pro Ile	
	130 135 140	
35		
	aag aag aag atc ata gac cac ttc cac aag aag ccg gtg cca ccc aag	480
	Lys Lys Lys Ile Ile Asp His Phe His Lys Lys Pro Val Pro Pro Lys	
	145 150 155 160	
40		
	ccg gag cca aag ccg gag cca ccc aag ccc aag cct gag ccg gag cac	528
	Pro Glu Pro Lys Pro Glu Pro Pro Lys Pro Lys Pro Glu Pro Glu His	
	165 170 175	
45		
	cca ttc ctc gac cac atc cac aag aag gag aag cac ttc ttc gac cac	576
	Pro Phe Leu Asp His Ile His Lys Lys Glu Lys His Phe Phe Asp His	
	180 185 190	
50		
	ttc cac aag aag ccc gtg cca ccc aag cct gag cct aag ccc gag ccc	624
	Phe His Lys Lys Pro Val Pro Pro Lys Pro Glu Pro Lys Pro Glu Pro	
	195 200 205	
55		
	aag ccg cag cct gcg cca gag tac cac aac cct agc cct ccg gcg aat	672
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	taa	675
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	20 25 30	
	Thr Ala Lys Cys Ala Asp Cys Thr Arg Lys Asn Met Lys Ala Glu Asp	

	35	40	45	
5	Ala Phe Lys Asn Leu Gln Val Ala Ile Lys Cys Lys Asn Gly Asn Gly	50	55	60
10	Glu Tyr Glu Ser Lys Ala Thr Gly Lys Leu Asp Gly Thr Gly Ala Phe	65	70	75
15	Ser Val Pro Leu Asp Ala Asp Leu His Ser Ser Asp Cys Ile Ala Gln	85	90	95
20	Leu His Ser Ala Thr Asn Glu Pro Cys Pro Gly Gln Glu Pro Ser Lys	100	105	110
25	Ile Val Pro Met Ser Glu Gly Thr Phe Ala Ala Val Ala Gly Lys Thr	115	120	125
30	His Tyr Arg Ser Ala Leu Cys Ala Ser Val Thr Ile Cys Gly Pro Ile	130	135	140
35	Lys Lys Lys Ile Ile Asp His Phe His Lys Lys Pro Val Pro Pro Lys	145	150	155
40	Pro Glu Pro Lys Pro Glu Pro Pro Lys Pro Lys Pro Glu Pro Glu His	165	170	175
45	Pro Phe Leu Asp His Ile His Lys Lys Glu Lys His Phe Phe Asp His	180	185	190
50	Phe His Lys Lys Pro Val Pro Pro Lys Pro Glu Pro Lys Pro Glu Pro	195	200	205
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85	cta tta tgc cat ggt tct atg gcc cag cta ttt aat ccc agc aca aac			
90	Leu Leu Cys His Gly Ser Met Ala Gln Leu Phe Asn Pro Ser Thr Asn	20	25	30
95	cca tgg cat agt cct cgg caa gga agt ttt agg gag tgt aga ttt gat			144
100	Pro Trp His Ser Pro Arg Gln Gly Ser Phe Arg Glu Cys Arg Phe Asp			

	35	40	45	
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15	act ttt gtg atc cga cgt gtc att cag cct caa ggc ctt ttg gta cct Thr Phe Val Ile Arg Arg Val Ile Gln Pro Gln Gly Leu Leu Val Pro 85 90 95	288		
20	cga tac aca aat att cct ggc gtg gtc tac atc atc caa ggc aga ggt Arg Tyr Thr Asn Ile Pro Gly Val Tyr Ile Ile Gln Gly Arg Gly 100 105 110	336		
25	tct atg ggt tta acc ttc ccc ggt tgc cct gcg act tac cag caa caa Ser Met Gly Leu Thr Phe Pro Gly Cys Pro Ala Thr Tyr Gln Gln Gln 115 120 125	384		
30	ttc caa caa ttt tca tct caa ggc caa agt cag agc caa aag ttt aga Phe Gln Gln Phe Ser Ser Gln Gly Gln Ser Gln Ser Gln Lys Phe Arg 130 135 140	432		
35	gat gag cac caa aag att cat caa ttt agg caa gga gac att gtt gca Asp Glu His Gln Lys Ile His Gln Phe Arg Gln Gly Asp Ile Val Ala 145 150 155 160	480		
40	ctc cca gct ggt gtt gca cat tgg ttc tac aat gat ggt gat gca cct Leu Pro Ala Gly Val Ala His Trp Phe Tyr Asn Asp Gly Asp Ala Pro 165 170 175	528		
45	att gtt gcc gta tat gtt tat gac gta aac aac aac gcc aat cag ctt Ile Val Ala Val Tyr Val Tyr Asp Val Asn Asn Asn Ala Asn Gln Leu 180 185 190	576		
50	gaa cct agg caa aag gag ttc cta tta gcc ggc aac aac aat cgg gct Glu Pro Arg Gln Lys Glu Phe Leu Leu Ala Gly Asn Asn Asn Arg Ala 195 200 205	624		
55	caa caa caa caa gta tat ggt agc tca att gag caa cac tct ggg caa Gln Gln Gln Gln Val Tyr Gly Ser Ser Ile Glu Gln His Ser Gly Gln 210 215 220	672		
60	aac ata ttc agc gga ttt ggt gtt gag atg cta agt gag gct tta ggc Asn Ile Phe Ser Gly Phe Gly Val Glu Met Leu Ser Glu Ala Leu Gly 225 230 235 240	720		
65	atc aac gca gta gca gca aag agg cta cag agc caa aat gat caa aga Ile Asn Ala Val Ala Lys Arg Leu Gln Ser Gln Asn Asp Gln Arg 245 250 255	768		
70	gga gag atc ata cat gtg aag aat ggc ctt caa ttg ttg aaa ccg act Gly Glu Ile Ile His Val Lys Asn Gly Leu Gln Leu Leu Lys Pro Thr 260 265 270	816		
75	ttg aca caa cag caa gaa caa gca caa gca caa gat caa tat caa caa Leu Thr Gln Gln Gln Glu Gln Ala Gln Ala Gln Asp Gln Tyr Gln Gln 275 280 285	864		
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85	gag gag aac ttt tgc acg atc aag gtg aga gta aac att gaa aat cct Glu Glu Asn Phe Cys Thr Ile Lys Val Arg Val Asn Ile Glu Asn Pro 305 310 315	960		

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	325		330	335	
10	aat agt cag aag Asn Ser Gln Lys	ttc ccc atc ctt Phe Pro Ile Leu	aac ctc atc caa Asn Leu Ile Gln	atg agc gct acc Met Ser Ala Thr	1056
	340		345	350	
15	aga gta aac cta Arg Val Asn Leu	tac cag aat gct Tyr Gln Asn Ala	att ctc tcg ccg Ile Leu Ser Pro	ttc tgg aac gtc Phe Trp Asn Val	1104
	355		360	365	
20	aat gct cat agt Asn Ala His Ser	ttg gtc tat atg Leu Val Tyr Met	att caa ggg cga Ile Gln Gly Arg	tct cga gtt caa Ser Arg Val Gln	1152
	370	375	380		
25	gtc gtt agt aac Val Val Ser Asn	ttt gga aag act Phe Gly Lys Thr	gtg ttt gat ggt Val Phe Asp Gly	gtc ctt cgc cca Val Leu Arg Pro	1200
	385	390	395	400	
30	gca caa tta ttg Ala Gln Leu Leu	atc att ccg caa Ile Ile Pro Gln	cat tat gct gtc His Tyr Ala Val	ttg aag aaa gca Leu Lys Lys Ala	1248
	405		410	415	
35	gag cgt gaa gga Glu Arg Glu Gly	tgc caa tat atc Cys Gln Tyr Ile	gca atc aag aca Ala Ile Lys Thr	aac gct aac gcc Asn Ala Asn Ala	1296
	420		425	430	
40	ttc gtc agc cac Phe Val Ser His	ctt gca ggg aaa Leu Ala Gly Lys	aac tca gta ttc Asn Ser Val Phe	cgt gcc ttg cca Arg Ala Leu Pro	1344
	435	440	445		
45	gtt gat gta gtc Val Asp Val Val	gct aat gcg tat Ala Asn Ala Tyr	cgc atc tca agg Arg Ile Ser Arg	gag caa gcc cga Glu Gln Ala Arg	1392
	450	455	460		
50	agc ctc aag aac Ser Leu Lys Asn	aac agg gga gaa Asn Arg Gly Glu	gag cac ggt gcc Glu His Gly Ala	ttc act cct aga Phe Thr Pro Arg	1440
	465	470	475	480	
55	ttt caa caa caa Phe Gln Gln Gln	tac tac cca gga Tyr Tyr Pro Gly	tta tcg aat gag Leu Ser Asn Glu	tcc gaa agc gag Ser Glu Ser Glu	1488
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	20	25	30		
	Pro Trp His Ser	Pro Arg Gln Gly	Ser Phe Arg Glu	Cys Arg Phe Asp	
	35	40	45		

269

Ser Arg Ala Asp Ser Tyr Asn Pro Arg Ala Gly Arg Ile Thr Ser Val
 325 330 335
 5
 Asn Ser Gln Lys Phe Pro Ile Leu Asn Leu Ile Gln Met Ser Ala Thr
 340 345 350
 10
 Arg Val Asn Leu Tyr Gln Asn Ala Ile Leu Ser Pro Phe Trp Asn Val
 355 360 365
 15
 Asn Ala His Ser Leu Val Tyr Met Ile Gln Gly Arg Ser Arg Val Gln
 370 375 380
 20
 Val Val Ser Asn Phe Gly Lys Thr Val Phe Asp Gly Val Leu Arg Pro
 385 390 395 400
 25
 Ala Gln Leu Leu Ile Ile Pro Gln His Tyr Ala Val Leu Lys Lys Ala
 405 410 415
 30
 Glu Arg Glu Gly Cys Gln Tyr Ile Ala Ile Lys Thr Asn Ala Asn Ala
 420 425 430
 35
 Phe Val Ser His Leu Ala Gly Lys Asn Ser Val Phe Arg Ala Leu Pro
 435 440 445
 40
 Val Asp Val Val Ala Asn Ala Tyr Arg Ile Ser Arg Glu Gln Ala Arg
 450 455 460
 45
 Ser Leu Lys Asn Asn Arg Gly Glu Glu His Gly Ala Phe Thr Pro Arg
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 Phe Gln Gln Gln Tyr Tyr Pro Gly Leu Ser Asn Glu Ser Glu Ser Glu
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 Met Val Glu Val Glu Glu Val Ser Asn Lys Met Gln Val Gln Met Arg
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 ctc cac ccc gcc gcg gcg gcg gag gag gag gac gcc gac ctc ccg ctc 96
 Leu His Pro Ala Ala Ala Ala Glu Glu Glu Asp Ala Asp Leu Pro Leu
 20 25 30

	ccc gcc ctc ttc gac aag gcg tcc cac ctc cac tcc ctc gcc tcc agc	144
	Pro Ala Leu Phe Asp Lys Ala Ser His Leu His Ser Leu Ala Ser Ser	
	35 40 45	
5	tcc tcc ctc gac cag gaa ggg atc cgc aag ggg gtc gac ctg ctg cgg	192
	Ser Ser Leu Asp Gln Glu Gly Ile Arg Lys Gly Val Asp Leu Leu Arg	
	50 55 60	
10	cgg tgc gac gag atg gtc agt aag gtc ggc ctc ttc tcc tcc aac gag	240
	Arg Cys Asp Glu Met Val Ser Lys Val Gly Leu Phe Ser Ser Asn Glu	
	65 70 75 80	
15	acc aag gat gac atc tcc acc gcc aac ctc aaa tac cta ctc gta ccg	288
	Thr Lys Asp Asp Ile Ser Thr Ala Asn Leu Lys Tyr Leu Leu Val Pro	
	85 90 95	
20	tac tac ctt ggg gaa atg act gaa agg gta gcg cag gaa gat cgg atc	336
	Tyr Tyr Leu Gly Glu Met Thr Glu Arg Val Ala Gln Glu Asp Arg Ile	
	100 105 110	
25	cca gtc ctt aag gcg tgc cag gat cat ttg aag gaa ttc att tct atc	384
	Pro Val Leu Lys Ala Ser Gln Asp His Leu Lys Glu Phe Ile Ser Ile	
	115 120 125	
30	tgt gaa gca ctg gag ctt ata tca gag gat gag ctt gaa ata tct agg	432
	Cys Glu Ala Leu Glu Leu Ile Ser Glu Asp Glu Leu Glu Ile Ser Arg	
	130 135 140	
35	cag aag aac ctg ata cca tgg caa atc gaa gag cac aga agg ttg cac	480
	Gln Lys Asn Leu Ile Pro Trp Gln Ile Glu His Arg Arg Leu His	
	145 150 155 160	
40	ggg tca agc gcc aaa agg ctg cag aaa caa agc tct aga atc aag gag	528
	Gly Ser Ser Ala Lys Arg Leu Gln Lys Gln Ser Ser Arg Ile Lys Glu	
	165 170 175	
45	agg aaa gaa agg cgt agg cgt cat gag agc agc tgc tta tca gct cct	576
	Arg Lys Glu Arg Arg Arg Arg His Glu Ser Ser Cys Leu Ser Ala Pro	
	180 185 190	
50	att gag ctg gga gga gat ctt ttg agg atg atg gag aag gaa aga gaa	624
	Ile Glu Leu Gly Gly Asp Leu Leu Arg Met Met Glu Lys Glu Arg Glu	
	195 200 205	
55	ggc atg gtt agc tac tat ctc att ggc tct atc gaa ggc ttt gac ctt	672
	Gly Met Val Ser Tyr Tyr Leu Ile Gly Ser Ile Glu Gly Phe Asp Leu	
	210 215 220	
60	ctt gac atg tta aag aag gaa gaa gaa atc gtt ccg gca gta aaa gaa	720
	Leu Asp Met Leu Lys Lys Glu Glu Glu Ile Val Pro Ala Val Lys Glu	
	225 230 235 240	
65	gga aag cga agg atg gta atg cat ttg ctc gtg aaa tgc ttg atg aac	768
	Gly Lys Arg Arg Met Val Met His Leu Leu Val Lys Cys Leu Met Asn	
	245 250 255	
70	gta caa aaa ggg ctg aag cat ggc acc ata atg ctg cca acc gtg cac	816
	Val Gln Lys Gly Leu Lys His Gly Thr Ile Met Leu Pro Thr Val His	
	260 265 270	
75	cat act cca aac cag ctg atc caa tca ctt gtg caa cta acc agt gaa	864
	His Thr Pro Asn Gln Leu Ile Gln Ser Leu Val Gln Leu Thr Ser Glu	
	275 280 285	
80	aga gag aga atg gca gca caa gtt ttt cag cca agt tat agg ttg cca	912
	Arg Glu Arg Met Ala Ala Gln Val Phe Gln Pro Ser Tyr Arg Leu Pro	
	290 295 300	

272

Gly Ser Ser Ala Lys Arg Leu Gln Lys Gln Ser Ser Arg Ile Lys Glu
 165 170 175
 5 Arg Lys Glu Arg Arg Arg Arg His Glu Ser Ser Cys Leu Ser Ala Pro
 180 185 190
 10 Ile Glu Leu Gly Gly Asp Leu Leu Arg Met Met Glu Lys Glu Arg Glu
 195 200 205
 15 Gly Met Val Ser Tyr Tyr Leu Ile Gly Ser Ile Glu Gly Phe Asp Leu
 210 215 220
 20 Leu Asp Met Leu Lys Lys Glu Glu Glu Ile Val Pro Ala Val Lys Glu
 225 230 235 240
 25 Gly Lys Arg Arg Met Val Met His Leu Leu Val Lys Cys Leu Met Asn
 245 250 255
 30 Val Gln Lys Gly Leu Lys His Gly Thr Ile Met Leu Pro Thr Val His
 260 265 270
 35 His Thr Pro Asn Gln Leu Ile Gln Ser Leu Val Gln Leu Thr Ser Glu
 275 280 285
 40 Arg Glu Arg Met Ala Ala Gln Val Phe Gln Pro Ser Tyr Arg Leu Pro
 290 295 300
 45 Thr Met Ser Ile Glu Glu Ala Gly Leu Arg Glu Met Lys Met Met Glu
 305 310 315 320
 50 Lys Trp Gln Glu Arg Thr Ala Lys Met Ile Gln Glu Ser Asn Ser Ala
 325 330 335
 55 Trp His Lys Asp Gly Ser Arg Ser Ala Gln Glu Asp Glu Asp Ala Glu
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 65 Gly Ala Gly Asn Lys Lys Leu Thr Pro Cys Gly
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10	aag gtg gca aag acc act gat gtt ggt gag ctc acc gtt gag gag cgg Lys Val Ala Lys Thr Thr Asp Val Gly Glu Leu Thr Val Glu Glu Arg 35 40 45 144
15	aac ctg ctt tct gtg gct tac aag aac gtg att ggt gct cgg agg gca Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala 50 55 60 192
20	tcg tgg agg atc atc tct tct att gag cag aag gag gag agc cgt ggg Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu Ser Arg Gly 65 70 75 80 240
	aat gag gca tat gtt gca tca att aag gag tac cgt agc agg att gaa Asn Glu Ala Tyr Val Ala Ser Ile Lys Glu Tyr Arg Ser Arg Ile Glu 85 90 95 288
25	act gag ctc agc aag atc tgt gat ggt atc ctt aag ctt ctg gat tcc Thr Glu Leu Ser Lys Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser 100 105 110 336
30	cac ctt gtc cca tct gcc act gct gca gag tcc aag gtg ttc tac ctg His Leu Val Pro Ser Ala Thr Ala Glu Ser Lys Val Phe Tyr Leu 115 120 125 384
35	aaa atg aag ggt gac tac cac agg tac ctt gct gag ttt aag tca gga Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe Lys Ser Gly 130 135 140 432
40	gct gag agg aag gaa gca gct gag aac act ctt gtg gca tac aag tct Ala Glu Arg Lys Glu Ala Ala Glu Asn Thr Leu Val Ala Tyr Lys Ser 145 150 155 160 480
	gcc cag gat att gca ctc gct gac ctg cct aca act cac ccg ata agg Ala Gln Asp Ile Ala Leu Ala Asp Leu Pro Thr Thr His Pro Ile Arg 165 170 175 528
45	ctt gga ctt gca ctg aac ttc tca gtg ttc tac tat gag ata ctg aac Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn 180 185 190 576
50	tca cca gac cgt gct tgc aac ctt gca aag cag gcg ttc gac gat gct Ser Pro Asp Arg Ala Cys Asn Leu Ala Lys Gln Ala Phe Asp Asp Ala 195 200 205 624
55	att gct gaa ctg gac act ctt ggc gag gag tct tac aag gac agc acc Ile Ala Glu Leu Asp Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr 210 215 220 672
60	ttg atc atg caa ctt ctt cgt gac aat ctg act ctc tgg acc tct gac Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr Ser Asp 225 230 235 240 720
	aat gcg gag gat ggt ggt gac gag atc aag gaa gca gcg aag cct gaa Asn Ala Glu Asp Gly Gly Asp Glu Ile Lys Glu Ala Ala Lys Pro Glu 245 250 255 768
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 20 25 30

20 Lys Val Ala Lys Thr Thr Asp Val Gly Glu Leu Thr Val Glu Glu Arg
 35 40 45

25 Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala
 50 55 60

30 Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu Ser Arg Gly
 65 70 75 80

35 Asn Glu Ala Tyr Val Ala Ser Ile Lys Glu Tyr Arg Ser Arg Ile Glu
 85 90 95

40 Thr Glu Leu Ser Lys Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser
 100 105 110

45 His Leu Val Pro Ser Ala Thr Ala Ala Glu Ser Lys Val Phe Tyr Leu
 115 120 125

50 Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe Lys Ser Gly
 130 135 140

55 Ala Glu Arg Lys Glu Ala Ala Glu Asn Thr Leu Val Ala Tyr Lys Ser
 145 150 155 160

60 Ala Gln Asp Ile Ala Leu Ala Asp Leu Pro Thr Thr His Pro Ile Arg
 165 170 175

65 Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn
 180 185 190

70 Ser Pro Asp Arg Ala Cys Asn Leu Ala Lys Gln Ala Phe Asp Asp Ala
 195 200 205

75 Ile Ala Glu Leu Asp Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr
 210 215 220

80 Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr Ser Asp
 225 230 235 240

	Asn	Ala	Glu	Asp	Gly	Gly	Asp	Glu	Ile	Lys	Glu	Ala	Ala	Lys	Pro	Glu	
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	1 5 10 15																
25	aag aag ttc cat gga gtc gct gag aat ccg acg gag aag att gtg cgc																96
	Lys Lys Phe His Gly Val Ala Glu Asn Pro Thr Glu Lys Ile Val Arg																
	20 25 30																
30	aat ctt gag tca ttt atg gaa aag aga ggg ttg cct aaa ggt tta aca																144
	Asn Leu Glu Ser Phe Met Glu Lys Arg Gly Leu Pro Lys Gly Leu Thr																
	35 40 45																
35	ctt gga agt tgc act gtt ctt gag act gct ggg cag ggt ggg ctt ggt																192
	Leu Gly Ser Cys Thr Val Leu Glu Thr Ala Gly Gln Gly Gly Leu Gly																
	50 55 60																
40	ccg ttg tat gaa gtg ttt gaa tca gcc atc gta gac aaa gag tat ggg																240
	Pro Leu Tyr Glu Val Phe Glu Ser Ala Ile Val Asp Lys Glu Tyr Gly																
	65 70 75 80																
40	ttg aat gat cag ggg caa gtg att ctg ctc cat ttt gga gtc aac agt																288
	Leu Asn Asp Gln Gly Gln Val Ile Leu Leu His Phe Gly Val Asn Ser																
	85 90 95																
45	ggc aca aca agg ttt gcc ctt gag aat caa gct att aat gaa gct acc																336
	Gly Thr Thr Arg Phe Ala Leu Glu Asn Gln Ala Ile Asn Glu Ala Thr																
	100 105 110																
50	ttc cgt tgc cct gat gag ctg gga tgg aaa cca cag agg gcc cct att																384
	Phe Arg Cys Pro Asp Glu Leu Gly Trp Lys Pro Gln Arg Ala Pro Ile																
	115 120 125																
55	gtg tca tct gat gga agc atc tca aat tta aga aag acc act gtg cct																432
	Val Ser Ser Asp Gly Ser Ile Ser Asn Leu Arg Lys Thr Thr Val Pro																
	130 135 140																
60	gtg aat gaa gtg aac aag tcc cta caa cag atg ggc ttc gat gtg gcg																480
	Val Asn Glu Val Asn Lys Ser Leu Gln Gln Met Gly Phe Asp Val Ala																
	145 150 155 160																
60	cct tcg gat gac gct ggt cga ttc gta tgc aac tat gtc tat tac caa																528
	Pro Ser Asp Asp Ala Gly Arg Phe Val Cys Asn Tyr Val Tyr Gln																
	165 170 175																
65	tct ctt agg ttc gca gaa cag cgc ggt atc aag tct ttg ttc gtc cat																576
	Ser Leu Arg Phe Ala Glu Gln Arg Gly Ile Lys Ser Leu Phe Val His																
	180 185 190																
	ttc ccc ctc ttc acg acg att agt gag gaa gtt cag atg aac ttc gtc																624

Phe Pro Leu Phe Thr Thr Ile Ser Glu Glu Val Gln Met Asn Phe Val
 195 200 205
 5 gca acc ctc ctc gaa gtt ctt gct tcc cag aac tat gca cag taa 669
 Ala Thr Leu Leu Glu Val Leu Ala Ser Gln Asn Tyr Ala Gln
 210 215 220
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 15 Met Gly Ser Glu Gly Pro Ser Gly Val Thr Val His Val Thr Gly Phe
 1 5 10 15
 20 Lys Lys Phe His Gly Val Ala Glu Asn Pro Thr Glu Lys Ile Val Arg
 20 25 30
 25 Asn Leu Glu Ser Phe Met Glu Lys Arg Gly Leu Pro Lys Gly Leu Thr
 35 40 45
 30 Leu Gly Ser Cys Thr Val Leu Glu Thr Ala Gly Gln Gly Gly Leu Gly
 50 55 60
 Pro Leu Tyr Glu Val Phe Glu Ser Ala Ile Val Asp Lys Glu Tyr Gly
 65 70 75 80
 35 Leu Asn Asp Gln Gly Gln Val Ile Leu Leu His Phe Gly Val Asn Ser
 85 90 95
 40 Gly Thr Thr Arg Phe Ala Leu Glu Asn Gln Ala Ile Asn Glu Ala Thr
 100 105 110
 45 Phe Arg Cys Pro Asp Glu Leu Gly Trp Lys Pro Gln Arg Ala Pro Ile
 115 120 125
 50 Val Ser Ser Asp Gly Ser Ile Ser Asn Leu Arg Lys Thr Thr Val Pro
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 Val Asn Glu Val Asn Lys Ser Leu Gln Gln Met Gly Phe Asp Val Ala
 145 150 155 160
 55 Pro Ser Asp Asp Ala Gly Arg Phe Val Cys Asn Tyr Val Tyr Tyr Gln
 165 170 175
 60 Ser Leu Arg Phe Ala Glu Gln Arg Gly Ile Lys Ser Leu Phe Val His
 180 185 190
 65 Phe Pro Leu Phe Thr Thr Ile Ser Glu Glu Val Gln Met Asn Phe Val
 195 200 205
 Ala Thr Leu Leu Glu Val Leu Ala Ser Gln Asn Tyr Ala Gln

210

215

220